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***The Road Less Travelled* – A critical realist model for graduate  
attribute development in Higher Education**

A thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Tasmanian School of Business and Economics

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By

Christine Adams

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*'Writing is not just something we do. It is also about who we are ...'* (Badenhorst, 2007 p.5)

Christine Adams

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## Abstract

This study commenced with an interest in the question: *what needs to exist in today's learning environment for students to think, learn and demonstrate the graduate attributes of communication, problem-solving and social responsibility attributes?*

A theory-building methodology from the critical realism paradigm was used to facilitate an explanation-based case study approach. The process of retrodution was used to develop a novel explanation of graduate attribute development, via access to a stratified reality in which the assumed mechanisms, events and experiences related to graduate attribute development exist. Thus, the study sought to confirm or disconfirm the activation of generative mechanisms and describe the contingent conditions under which graduate attribute development may be enabled or suppressed.

The study proceeded through three key phases. First, insights into what the researcher perceives as 'typical' students in the context of graduate attribute development were developed, and then the key challenges facing educators and students in graduate attribute development were considered. From this reflection, and tentative description of the components of a proposed model of graduate attribute development the components were 'redescribed'. Second, by contrasting several theoretical frameworks and interpretations, new insights emerged into the possible *transfactual* conditions that need to be present for their collective influence upon graduate attribute development.

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Third, the proposed graduate attribute development model was subject to empirical scrutiny through mixed-method data collection. Support for each developed postulate ultimately iteratively informed a proposed model for graduate attribute development, providing empirical support at the same time. Importantly, during the third phase of the study the specific transfactual conditions that were assumed to exist for a student, educator or the learning environment to contribute to the model were also confirmed.

In summary, this study did not aim to test causality in a positivist sense, but rather, develop a model of graduate attribute development that others can now empirically test. The model explains that individual students having certain *structures* and necessarily possessing certain *causal powers* that and under *specific conditions* can potentially produce change: development of graduate attributes (within the context of this study communication, problem-solving and social responsibility), and building student capability and a sense of identity.

**Key words:** graduate attributes; retroduction; transfactual conditions; mixed-method approach.

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## Chapter 1: Introduction

### Prologue:

*In writing this critical realist thesis I have chosen to use certain features to hopefully make the reading both easier and more rewarding. The first is to provide a meta-commentary at the beginning of each chapter and indicate what I am intending to do, how and why (Thomson 2012). The second is to write with academic rigour, but with accessibility particularly when dealing with sometimes complex theoretical frameworks and terminologies. Hence the writer will move from use of the first person to use of the third person as is commonplace in a critical realist thesis. Finally, I am including figures and tables where appropriate to explain a particular point or concept.*

### 1.0 INTRODUCTION

In this chapter I firstly present some background about my interest in investigating the factors that may enable or suppress the development of graduate attributes leading to a need for the study. Second, I provide a definition of graduate attributes used in this study and explore the value of graduate attributes for employers and students and the challenges besetting higher education (presented as the research problem). This is followed by the research opportunity leading to the research proposition. Next I provide indicative research outcomes: that is, anticipated contributions to theory, methods and practice. The chapter concludes with an outline of the thesis structure.

It is important to note that this chapter, in explaining interest in graduate attribute development sees the freeing of the researcher's voice. This is seen as part of owning my learning and research, authorising myself to say 'This is what I think is happening or I believe is occurring, based on ...', yet offering the reader a succinct analysis of the literature relevant to the research proposition as it evolves.

### **1.1 THE RESEARCHER'S MOTIVATION**

The study commenced with the researcher observing an anomaly in graduate attribute development, awakening a curiosity as to why only some students develop graduate attributes, others do so to partial extent, while others 'struggle' with their development. These musings led to wondering about 'what needs to exist in today's higher education learning environment for students' transformation that is, for students to think, learn and demonstrate graduate attributes?' These questions were validated as important, as it appears that the notion of student transformation is not part of a common narrative in conversations with colleagues and students. The common narrative seems to be more about 'getting students through', rather than offering an opportunity to *linger* and *get into* the learning experience (Hart 2001). This curiosity about graduate attribute development, and how it can be fostered, has led to this study, which aims to identify what combination of factors is capable of enabling the development of graduate attributes in higher education.



## 1.2 DEFINING GRADUATE ATTRIBUTES

At the outset it is useful to acknowledge the debate about graduate attribute skills (hereafter referred to as graduate attributes), and what they actually are. Contention and variation in perspectives remain on a number of fronts and these are mentioned briefly in this chapter and discussed fully elsewhere (Barrie 2004, 2006; Bowden, Hart, King, Trigwell & Watts 2000; Green, Hammer & Star 2009; Jones 2009; Moore 2004; Star & Hammer 2007; Treleaven & Voola 2008).

However, it is important to note a number of points about the nature of graduate attributes which are relevant to this study, before a definition is provided. Firstly, a lack of conceptual clarity around the nature of graduate attributes has been on the agenda of researchers for some time (Barrie 2005; Barrie 2006; Moore 2004, Hager, Holland & Beckett, 2002) and is reflected in the diverse array of graduate attribute statements which include *values* among the desirable outcomes, for example 'to value and respect differing views' (University of Canberra, cited in Green, et al. 2009, p. 19).

Second, research suggests the most fundamental issue about the 'nature' of graduate attributes is a philosophical one, regarding the meaning and usefulness of the basic idea of what is cited as 'generic capability', which usually incorporates the notion of transferability across contexts (McNeil, Scicluna, Boyle, Grimm, Gibson & Jones 2012, p. 526). These authors also contend that the value of graduate attribute is contextually dependent that is, they can only be understood, learned

and put into practice within specific contexts. The important element of 'context' within a definition of graduate attributes will be discussed later in this chapter.

Third, it is suggested that graduate attribute skills are *process* skills which help students to effectively apply content or subject skills learnt in higher education to professional and personal environments (Lizzio, Wilson & Simons 2002). Barrie refers to them as '*enabling attributes* which sit not as parallel learning outcomes to disciplinary knowledge, but as *abilities* that sit at the very heart of discipline knowledge and learning' (2003, p. 4).

Having acknowledged the debate about what graduate attributes are, it is useful to note that, unlike many graduate attribute statements in higher education in the United Kingdom, Australian statements explicitly emphasise the relevance of graduate attributes to both the world of work (employability) and other aspects of life (Bowden et al. 2000; Hager et al. 2002). In particular, their role in equipping graduates as global citizens and effective members of modern day society who can act as 'agents of social good' has been emphasised in the Australian context (Barrie 2004, p. 262). (See Appendix 1 for the Generic Attributes Statement from the University of Tasmania: the location of this study.)

In Australia, graduate attributes have come to be accepted as being the skills, knowledge and abilities of higher education graduates, beyond disciplinary content knowledge, which are applicable in a range of contexts and are acquired as a result of completing any undergraduate degree (Barrie 2007, p. 439). These are the skills,

personal attributes and values which should be acquired by all graduates regardless of their discipline or field of study. In other words, it is argued, graduate attributes represent the required minimal achievement of higher education as a process (The Higher Education Council Australia 1992, p. 20), and as such for the purpose of this study they are defined as:

The qualities, skills and understanding a university community agrees its students would desirably develop during their time at the institution and consequently shape the contribution they are able to make to their profession and as a citizen (Bowden et al. 2000).

However, debate continues about the development of graduate attributes and whether they are transdisciplinary, identifiable and measurable in 'isolation from the disciplinary context' (Jones 2012, p. 6), although some confidence can be derived from recent research that suggests graduate attributes are no longer seen as independent of discipline knowledge as they interact with discipline knowledge (Nagarajan & Edwards 2014).

### **1.3 THE VALUE OF GRADUATE ATTRIBUTES**

In defining graduate attributes it becomes clear that graduates increasingly need the ability to navigate the world of work and self-manage the career-building process (Bridgestock 2009). The importance and relevance of graduate attributes is recognised not only in higher education and professional industry bodies, but also by governments and accrediting bodies for quality assurance purposes (Treleaven & Voola 2008).

Research suggests that there are three main arguments for the importance and inclusion of graduate attributes in higher education (Bowden et al. 2000). It is suggested that it is the role of higher education to produce citizens who can be 1) *agents for social change*; 2) *be prepared for an uncertain future*; and 3) *be good in the community*. This community role is noted by others who see graduates as being engaged citizens at both the community and global levels (Australian Learning and Teaching Council 2009; Barrie 2005). Others speak of the important role graduate attributes play for work in interdisciplinary and multicultural teams (Fiori, Jaselskis, Schexnayder, Shane, Becker, Short, Velásquez, Recavarren, & Vranich 2012; Kember 2009; Candy & Crebert 1991)

Other research provides further support and extends the arguments presented so far. The first relates to higher education's espoused traditional role to produce graduates of 'social good in the community'. The second relates to 'employability' (the idea that employers desire graduates who are 'work ready') possessing capabilities important for successful business or professional practice that go beyond disciplinary competence (Treleaven & Voola 2008; Candy, Crebert & O'Leary 1994; Bath, Smith, Stein & Swann 2004). The third argument focuses on a graduate's ability to adapt to rapid changes in professional and personal life. This third idea centres on graduate attributes being critical to developing a generation of life-long learners (Bowman 2010; Bowden et al. 2000; Candy & Worrall-Carter 1999; Candy et al.1994).

Furthermore, research speaks of graduate attributes being integral to professional employability where graduates need to demonstrate their achievement of graduate attributes (Treleaven & Voola 2008; Boud & Falchikov 2005; Hoban, Lefoe, James, Curtis, Kaidonis, Hadi, Lipu, McHarg & Collins 2004; Kember & Leung 2005; Barrie 2006; 2005), with employers increasingly demanding that graduates they hire should 'fit' and add value to the business in the short-term and long-term (Nankervis, Compton & Baird 2005).

Yorke (2006) discusses the preparation of graduates for work as a two-layered approach which adds further weight to the value of graduate attributes. Job-readiness is the first layer of students' preparation and it is linked to professional knowledge. Employability is the second layer and involves the ability and willingness of graduates to think 'beyond' knowledge. Employer perspectives are reflected by this layer when challenges and difficulties arise at work, a graduate needs to be able to combine the most appropriate knowledge for a given situation (i.e., graduate attributes and job-specific skills), to read situations and determine suitable strategies. Kember (2009) adds to this by suggesting that if knowledge taught for a degree can become outdated soon after leaving the higher education environment, it becomes increasingly important that graduates are capable of lifelong or self-managed learning. This implies a need for a range of intellectual 'qualities' such as critical thinking, communication and the capability to deal with ill-defined problems in professional and personal life (Kember 2009, p. 38).

#### **1.4 THE VALUE OF THE SPECIFIC GRADUATE ATTRIBUTE SKILLS UNDER INVESTIGATION**

In continuing the discussion on the value of graduate attributes it is timely to consider the value of the specific attributes under investigation in this study communication, problem-solving and social responsibility skills in light of the definition of graduate attributes used for this study (see 1.2)

The ability to communicate has been consistently identified by employers as one of the most essential graduate attributes, and communication (and interpersonal) skills have been chosen as the top key selection criteria by employers in Australia (Graduate Careers Australia 2014, p.27). Other research emphasises that in today's society, students need to be aware of their own *identities*, be capable of communicating, and possess the skills, knowledge and behaviours necessary to develop positive relationships across cultures (Checkoway 2011).

A primary task of higher education therefore goes beyond disciplinary mastery to meaningful engagement with content that facilitates development of complex moral judgments and understanding of self as part of the larger social context (Swaner 2005). Others note that educators need to bring the conversation of developing social responsibility to the forefront of higher education, given the importance of preparing graduates for effective participation in professional and personal life. This conversation may help to increase a student's awareness of social problems and strengthen their education by searching for a solution to those problems (Nagarajan & Edwards 2014; Reason, Ryder & Kee 2013). Higher education is also considered to have a 'civic' mission (Hamrick 1998; Hurtado 2007;

Cox, McIntosh, Reason & Terenzini, 2011). This means preparing graduates to engage in community life and effectively communicate across demographic, ideological and political differences (Nagarajan & Edwards 2014).

Current events within broader society illuminate the need to provide intentional learning opportunities that support moral development among students (Reason et al. 2013). Ideological and demographic trends are creating a society that is increasingly diverse, requiring higher education graduates to engage in 'situational learning' and have the capacity to 'read' situations accurately and sensitively. As Oliver notes, graduate attributes need to be integrated into curriculum, particularly if they are to be used by capable individuals faced with the 'messiness' of problems in the real world (2013). In emphasising the sociocultural aspect of the workplace requires graduates to consider appropriate strategies to manage new and novel situations sensitively, which are likely to be as important as cognitive capacities in contributing to the success or otherwise of graduates seeking and retaining employment (Hager & Holland 2006).

### **1.5 THE RESEARCH PROBLEM: THE ROAD LESS TRAVELLED TO GRADUATE ATTRIBUTE DEVELOPMENT**

In the challenging context of today's higher education system and changing employment opportunities post-graduation, it is important to consider firstly how higher education currently supports students to develop the communication, problem-solving and social responsibility skills (the graduate attributes under investigation) that are embodied as desirable graduate attributes, and secondly

consider to what extent current approaches are effective (Nagarajan & Edwards 2014).

There are concerns about today's graduates preparedness for work (Vu, Rigby & Mather 2011; Siraj et al. 2012), and that higher education does not appear to be doing as well as it might in producing graduates who have attained the targeted attributes (McNeil, Scicluna, Boyle, Grimm, Gibson & Jones, 2012; Arum, Roksa & Cho 2011; Thompson, Treleaven, Kamvounias, Beem & Hill 2008; Green, Hammer, & Star 2009; Barrie 2006; Hoban, Lefoe, James, Curtis, Kaidonis, Hadi, Lipu, McHarg & Collins 2004; Longworth & Davies 1996). The following quote exemplifies these concerns:

For the most part fundamental change has been shunned; universities have opted for cosmetic surgery, taking a nip here and tuck there, when radical reconstructions is called for (Boyer Commission on Educating Undergraduates in the Research University 1998, cited in Lueddeke 2003, p. 223).

Others note that measurement or judgement of graduate attribute development has not been undertaken to any great extent in Australia (Bridgestock 2009; Green, Hammer & Star 2009; Bath, et al. 2004). Kember points out that there is limited evidence of the nature of effective mechanisms to produce graduate attribute skills, and there is still some uncertainty about how graduate attribute skills can be developed (2009).

A review of the Australian Universities Quality Agency's audits of virtually all Australian universities, found widespread failure to incorporate graduate attribute development into curricula and assessment systems and failure to affect student



learning of these capabilities (Ewan 2009). The overall picture in higher education systems globally is one of 'patchy implementation and uptake of ... graduate attribute initiatives' (Barrie 2006, p. 218) and 'much reform is still required, despite a decade of universities claiming such outcomes on behalf of graduates' (Barrie 2006, p. 219). Others suggest graduate attributes do not appear to be 'a well-advertised concept' among graduates (Nagarajan & Edwards 2014, p. 15).

Of the evidence that exists on successful approaches to graduate attribute development, it seems that forms of learning that are *student-considered* which require active student involvement, that are self-directed, reflective and relevant to students, seem to be better at promoting graduate attribute development (Kember 2009; Luca & Oliver 2002; Carrick Institute for Learning and Teaching 2006; Moon 2004; Ryan & Ryan 2013). When students are provided with opportunities to examine and reflect upon their beliefs, philosophies and practices they are more likely to see themselves as active change agents and lifelong learners within their professions (Mezirow 2006).

However, despite considerable attention to the issue, higher education institutions still seem unable to produce convincing evidence that they are able to guarantee that the bulk of their graduates will have acquired a broad range of graduate attributes. This is not to say that there aren't many reports of effective isolated projects operating in individual departments or faculties (de la Harpe, Radloff & Wyber 2000; Tait & Godfrey 1999), but many of these would seem to target

individual skills or a limited set of attributes (de la Harpe 2006; Smith & Bath 2006; Thompson, Treleaven, Kamvounias, Beem & Hill 2008).

Research undertaken by Curtin University (Oliver 2013) indicates room for improvement particularly in problem-solving, analytic skills, teamwork, written communication and the ability to plan. Furthermore, Jones (2009), in a study of graduate attribute development in five disciplines, identified some dislocation between the espoused theory described by educators and their teaching practice with regard to graduate attributes. While attributes such as critical thinking, problem-solving and communication are valued by educators and seen as part of the structure of their discipline, they are often not explicit in teaching. A number of reasons were provided in this study for this inconsistency including:

- Tension between content and skill and the priority given to technical competence
- Practical difficulties (i.e., large classes, time constraints)
- Resistance on the part of academics to practices that are perceived not to be integral to the discipline (i.e., imposed from the outside); and
- Resistance on the part of students to uncertainty and ambiguity (Jones 2009, p. 179).

It appears that many Australian educators have yet to develop clear strategies for developing and assessing graduate attributes within their specific disciplinary contexts (Barrie 2005; de la Harpe et al. 2000; Green et al. 2009). Some research indicates that appropriately designed assessment that is self-directed, reflective and authentic is the cornerstone of graduate attribute development. What seems to be required is a shift from a focus on content to one that integrates content with process with 'how to' as well as 'what' and the 'why' which is student-considered.

The educator must begin with where the student is, clearly articulating their expectations of the students learning.

Various commentators (Barnett 2000; Boud 2000; Barrow 2004; Green et al. 2009) have made the observation that in a 'knowledge society' or an age of 'super-complexity', higher education teaching practices must change if they are to facilitate the development of capable graduates who can negotiate society's inevitable uncertainties (Department of Education, Science & Training [DEST] 2005). Oliver (2013) suggests graduate attributes need to be integrated into the curriculum, particularly if they are to be used by 'capable people faced with the "messiness" of problems in the real world'. Others note that higher education should go beyond knowledge of a discipline or becoming competent in a practical profession to develop more transferable capabilities, particularly as knowledge taught in a degree can become outdated soon after leaving higher education (Kember 2009).

Given the highlighted value and importance of graduate attributes, it is interesting that their development in higher education is considered inconsistent. A number of potential reasons for this arise in the literature. These include educators who may be disengaged with graduate attributes, as they are perceived to compete with the unit learning outcomes (Radloff, de la Harpe, Scoufis, Dalton, Thomas, Lawson, David & Girardi 2009). Oliver suggests graduate attributes that are embedded in unit outcomes need not threaten mastery of content, but educators often see *each*

graduate attribute as an entity in itself that can be separated and measured in isolation, rather than as they are in practice, overlapping and entwined (2013).

Conversely, Greene notes that units that are specifically designed to develop graduate attributes are not always popular with students (2006). Some students value process-focused teaching around their assessment which offers explicit explanation, modelling and opportunities for practice before assessment. Other students are more critical, arguing that such teaching approaches are not necessary. Greene (2006) notes that polarised student responses to units that explicitly *target* graduates attributes have been reported.

Other reasons for higher education's 'underperformance' in developing appropriately prepared graduates have been described by Smith and Bath (2006 cited in Kember 2009, p. 39) who note that, 'while there is a plethora of research investigating the development of graduate attributes, there is still some uncertainty about *how* generic skills should be developed'. It appears that many Australian higher education institutions have yet to develop clear strategies for developing and assessing graduate attributes within their specific disciplinary contexts (Barrie 2005; de la Harpe et al. 2000; Green et al. 2009; Kember 2009; Hoban et al. 2004). There is evidence of confusion about how graduate attributes should be taught, assessed and judged and how their 'adoption should ultimately shape teaching practices in higher education' (Green et al 2009, p. 18).

This view is also noted by Barrie (2004) who states that higher education finds it difficult to embed and assess graduate attributes and that these are not really 'tested' until students enter the workforce. This is a significant challenge for higher education as commentary suggests that assessment requires alternatives to and changes in current practice (Barrie et al. 2008; Australian Learning and Teaching Council (ALTC), 2009; Bozalek, Ng'ambi, Wood, Herrington, Hardman & Amory 2015). Embedding graduate attributes in the curriculum is important, for example the development of communication skills occurs most effectively in the context of disciplinary study (Arkoudis & Starfield 2007), yet communication is often treated as a 'bolt on extra-curricular study skill' (Wingate 2006, cited in Johnson, Veitch & Dewiyanti 2015, p.1). There is also acknowledgement of the challenges of embedding graduate attributes because of perceived difficulties in the collaboration process, varying teaching philosophies (Edwards & King 2002), power relations and institutional processes within higher education.

Other reasons for higher education's perceived underperformance in contributing to graduate attribute development may relate to educators, who are usually appointed for their expertise in their discipline and research achievements, having a varying commitment to, and success in, the application of the concept of graduate attribute to their discipline (Nagarajan & Edwards 2014). Kamvounias and Thompson (2008) add that graduate attributes can be conceptualised at different institutional levels, also presenting challenges for curriculum development. Others suggest that educators need to facilitate more explicit connections between

learning, assessment and graduate attributes so students come to appreciate and be aware of their development (Thompson, Treleaven, Kamvounias, Beem & Hill 2008). This will require educators to track and assess their development of graduate attributes (Kamvounias & Thompson 2008).

Jones' research reports a lack of consistency in educator beliefs about the importance of graduate attributes, and the degree to which they exist in teaching practice (2009). This is perhaps due, as previously noted, to the assumption that graduate attributes exist outside of the disciplinary context, yet Jones notes the importance of the *disciplinary culture* in shaping the way attributes are taught and the extent to which they are developed (2009). Marginson (2004, cited in Reid & Parker 2002, p. 21) notes for example that problem-solving is treated differently in different disciplines. Humanities students are likely to approach a problem with the intention of creating a deeper understanding of it and will critically analyse or critically evaluate a problem rather than trying to solve it (Chanock, Clerehen, Moore & Prince, 2004). Conversely, business management students are often presented with case studies which highlight potential problems they may be required to solve in practice. These students may be more likely to see problem-solving as a key component of decision-making. It would therefore appear that different graduate attributes tend to develop in ways according to the conventions and norms of each discipline (Green et al. 2009). This may serve to reinforce the apparent gap between ideal notions of graduate attribute development and assessment and their enactment in current teaching practice (Jones 2009).

It is therefore not surprising that higher education is grappling with how to design programs (herein after referred to as 'units') to develop and assess graduate attributes. This creates an opportunity to identify and describe the key factors that may increase a student's potential to develop graduate attribute and the role each factor might play in such development (Green, et al. 2009, Oliver 2013; Radloff, de la Harpe, Scoufis, Dalton, Thomas, Lawson, David & Girardi 2009).

## **1.6 THE RESEARCH OPPORTUNITY**

Given the inconsistencies in graduate attribute development discussed so far it would seem imperative for higher education to review and consider alternatives to current teaching and assessment practices (Barrie 2008; Rigby 2010; Bozalek et al. 2015). At the same time higher education and its educators need to acknowledge that achieving 'improvements' in teaching and learning outcomes (such as graduate attributes) are complex to assess or judge and even more complex to attribute to one intervention or cause (Chalmers 2007). Such 'complexities' may arise as the development of graduate attributes does present a shift from the traditional higher education curriculum focus on 'content' and knowledge to one which emphasises *process* (Australian Learning and Teaching Council 2009).

Additionally the development of graduate attributes is 'complex and multi-layered and not constrained by the formal curriculum' (Rhodes 2010, cited in Oliver 2013, p.456). The formal planned curriculum, largely controlled by educators, is one way of enabling graduates who are work ready. Of equal importance, and not widely

considered, is *what the student does* in integrating learning experiences, and knowing what they know, *within and beyond* the formal curriculum (Oliver 2013).

This research contemplates what needs to exist in the learning environment for a student to integrate learning experiences into the development of graduate attributes. As such, a specific research opportunity emerges:

*What does the learning environment need to look like for students to think, learn and demonstrate graduate attributes?*

By employing a critical realist approach, a response to this question may enable the researcher to identify and describe the generative mechanisms that can lead to the development of graduate attributes within the business education context, and identify the contingent conditions under which such mechanisms might be enabled or suppressed. As noted in Section 1.5, past research has not looked into building a model for graduate attribute development, nor has research attempted to explain the structures, mechanisms and conditions that may act as enablers for graduate attribute development.

Given the nature of this research opportunity, critical realist evaluation questions (Pawson & Tilley 1997) (that are discussed further in Chapter 6) have been used to further explain the research opportunity. The aim of such evaluation is a type of an explanatory quest. As Pawson and Tilley (2004) attest, a model or theory is ‘tested’ for the purpose of refining it. The basic question asked in critical realist evaluation, and hopefully answered, is multifaceted. Realist evaluations ask not, ‘what works?’



or, 'does this model work?' but instead, '*what works for whom in what circumstances and in what respects, and how?*' Such questions drive the researcher to inspect the reasoning of a model for graduate attribute development, and in so doing may arrive at research conclusions that they may be *many shades-of-grey*, and further questions about when the model will work and the fallibility of the findings may arise (Pawson & Tilley 2004). Using the critical realist evaluation principles, this study will consider the following questions in developing a model of graduate attribute development as follows:

- For whom will this model of graduate attribute development apply? (For example, will it support those less engaged students?)
- Where will this model apply? (For example, at a unit or individual student level?)
- In what contexts and in what respects could the model be effective? (For example, in traditional, experiential and/or intensive learning delivery?)
- How can educators *realistically* support students to develop graduate attributes?
- Why don't all students develop graduate attribute skills even when it seems appropriate structures, mechanisms and processes are in place?

It is acknowledged that this research opportunity is complex and requires the researcher to have an open mind about how best to investigate the phenomenon of graduate attribute development. As such, it is anticipated that the study will have the capacity or potential to make a significant contribution to theory, method and practice.

From the research opportunity, the following working research proposition emerges:

*A combination of knowable factors related to individual students, their educators and the conditions they interact with and create, many of which are largely invisible in nature, are capable of enabling or suppressing the development of graduate attributes in higher education.*

The *extent* of the study is students engaged in Business and Entrepreneurship units with The Tasmanian School of Business and Economics (TSBE). The *grain* of the study relates to the individual students sampled and their experiences within traditional, intensive and/or experiential 2nd- or 3rd-year units in developing the graduate attributes of communication, problem-solving and social responsibility skills. Wiens notes that 'extent and grain define the upper and lower limits of resolution of a study, they are analogous to the overall size of a sieve and its mesh size respectively' (1989, p. 387).

### **1.6.1 Anticipated Contribution to Theory**

It is anticipated that this research will add to the body of knowledge about what needs to exist within the learning environment for students to think, learn and show/do specific graduate attribute skills. It aims to provide a model for graduate attributes by explaining and critiquing the structures, mechanisms and conditions and their effects that account for this transformation in students (Welsh & Dehler 2007). Insights drawn from the researcher's own experiences, educators and students may offer a response to Bierbaum's concern about the one-sided nature of feedback collected on the development of graduate attributes, which is largely

collected using a range of graduate student surveys (2007).

Focusing on the factors that potentially 'hold' education in place is potentially the starting point for understanding the latent potential for change emanating from pedagogy of inquiry fixed in a critical examination of 'alternative social ontologies' (Cruickshank 2002, p. 3 cited in Welsh & Dehler 2007). Using critical realism as a theoretical framework and set of assumptions, is a way to examine the 'intellectual shortcomings of management education and the practical necessities involved in its transformation and 'nudge us closer to the heretofore elusive tipping point' (Welsh & Dehler 2007, p. 419).

The capacity of this study to contribute to the graduate attribute development literature is enhanced by an approach best described as 'methodological pluralism and tolerance' from which the general aim is to 'develop concepts that enhance the understanding of social phenomena in natural settings' (Neergaard & Ulhøi 2007, p. 4). This study attempts to identify the structures, mechanisms and conditions, and how a model of graduate attribute development may contribute to the literature on building a transformative learning environment (Mezirow 2006) where the emphasis is on educators and students developing a learning partnership which is a shift from *going on from learning* to *going into learning* (Hart 2001). An interdisciplinary approach is favoured to increase the capacity of the study to access a broader theoretical base. This interdisciplinarity promotes *combinations of knowledge* and *new explanatory models*, and often generates *new* approaches and

methods (Danermark 2002, p.56). This will enable the study to be informed from sources beyond the higher education literature, the inadequacies of which have been described.

### **1.6.2 Anticipated Contribution to Method**

To pursue this research opportunity, the methodological process of *retroduction* (Bhaskar 1979) has been used to provide the researcher with an iterative pathway from which to move cognitively between the observed events experienced initially in the description of the phenomenon, ‘discern[ing] the structures and mechanisms that are capable of producing them [events]’ (Sayer 1992, p. 107), and seeking evidence in the second stage that the ‘proposed structures, mechanisms and conditions are in fact real’ (Jones 2009, p. 13). Therefore, the assumptions developed from observed events in the first phase of the research guide the development of a proposed model or explanation. Evidence is then sought to support the assumptions upon which a number of postulates have been made. The better supported the postulates are, the more confidence is given to an initial ‘model’ developed through the process of retroduction (Mahoney 2003). Given the influence this process has on the structure of thesis, it is important to enable the reader to understand and appreciate the retroduction process, a key process when investigating past events, events that having already occurred (Mahoney 2003).

Separate to inductive and deductive forms of reasoning, retroduction is a different kind of reasoning, it ‘represents an attempt to overcome the pitfalls of purely inductive or deductive research processes’ (Saether 1998, p. 246). Moreover,

Pierce (1908, p. 104) argued that retroduction is a form of reasoning through which ‘spontaneous conjecture of instinctive reasoning’ provides the intellectual foundations for new ideas to eventually be deductively explicated and/or inductively evaluated. It is an initial thought process through which the provisional plausibility of something is held to be possible. Peirce wonderfully captures the essence of the process when he says:

The whole series of mental performances between the notice of the wonderful phenomenon and the acceptance of the hypothesis, during which the usually docile understanding seems to hold the bit between its teeth and to have us at its mercy—the search for pertinent circumstances and the laying hold of them, sometimes without our cognisance, the scrutiny of them, the dark labouring, the bursting out of the startling conjecture, the remarking of its smooth fitting to the anomaly, as it is turned back and forth like a key in a lock, and the final estimation of its plausibility, I reckon as composing the first stage of inquiry (Peirce 1908, p. 100).

For Peirce, such journeys using the process of retroduction are essential for the development of new ideas from which deductions can be drawn and compared against future observations (1908). Danermark et al. (2001, p. 96) explain that ‘retroduction is about advancing from one thing and arriving at something different’.

### **1.6.3 *Anticipated Contribution to Practice***

There is evidence that the strategies needed to develop graduate attribute are also the ones that lead to good learning outcomes for students (Hager et al. 2006). Hence developing an understanding of the factors that may enable their development, may lead to a more ‘powerful learning environment’ (Hager et al.

2006, p. 7; Hoban, Lefoe, James, Curtis, Kaidonis, Hadi, Lipu, McHarg & Collins 2004).

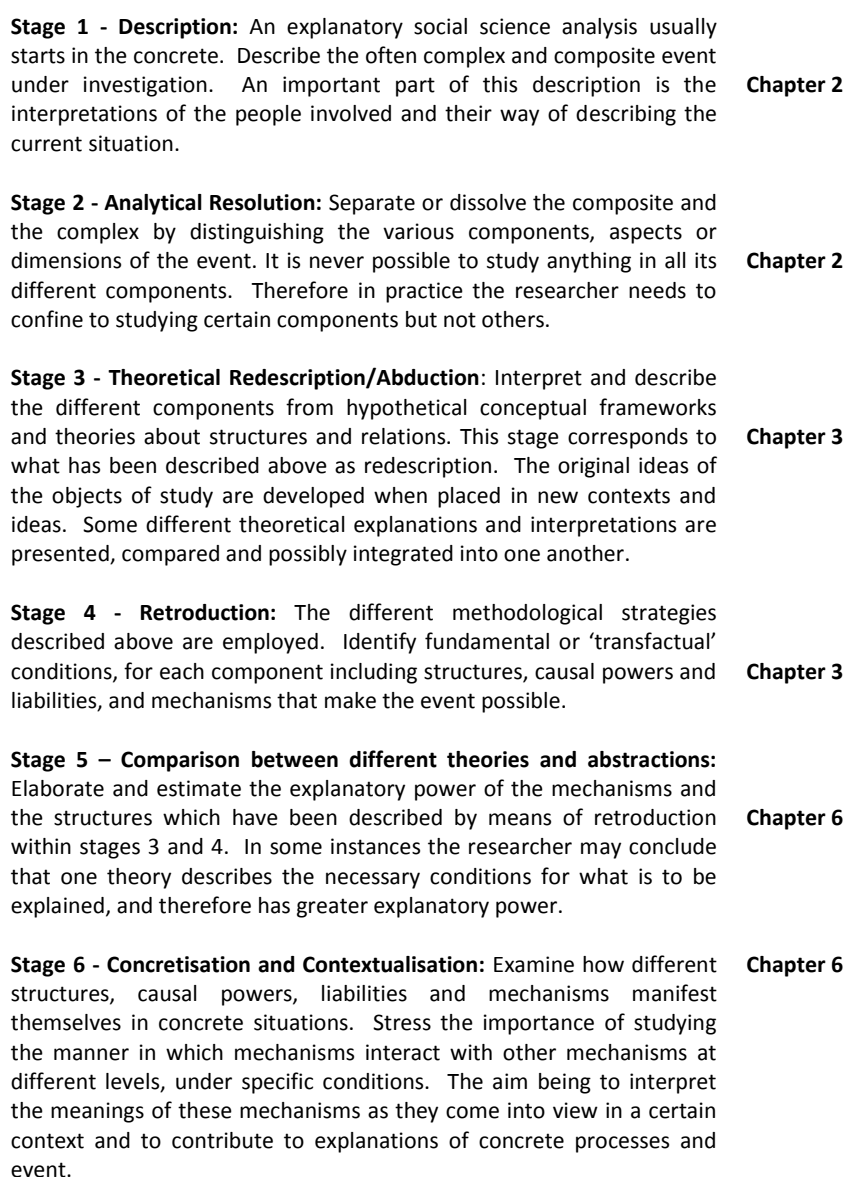
Evidence suggests that graduate attributes are best developed in a student-considered environment (discussed in Chapter 2). It is proposed that the model of graduate attribute development will offer educators an approach that is more student-considered, recognising that the educator/student relationship needs to shift, to acknowledge students as co-creators of knowledge in a partnership approach with the educator. This may support students in building self-confidence, resilience and capability (McCabe & O'Connor 2014; Healy, Flint & Harrington 2014; Scott, Dixon & Dixon 2005). A partnership approach is considered a sophisticated and effective process of student engagement understood as educators and students learn and work together, providing opportunities for educators to reflect and refine their teaching philosophy and for students to consider their role in the learning environment (Healy, Flint & Harrington 2014; Robinson & Lai 2005).

In this sense partnership is a relationship in which partners are actively engaged in both the learning process, and working together (Healy, Flint & Harrington 2014). It offers the potential for a more authentic engagement with the nature of learning itself and the possibility for genuinely transformative learning experiences for all involved (Healy, Flint & Harrington 2014). Such authentic engagement may support students shifting away from a surface or reproducing learning approach to deep learning, and may facilitate a greater awareness of the importance and value of graduate attributes (Lizzio, Wilson & Simons 2002).

## 1.7 THE THESIS STRUCTURE

The manner in which *retroduction* as a form of reasoning (see 1.6.2), is incorporated within this study and how it influences the structure of the thesis is illustrated in figure 1.1.

**FIGURE 1.1 RESEARCH PHASES – THE STAGES OF RETRODUCTION**



Source: Danermark, Ekström, Jakobsen, & Karlsson, 2002 p. 109.

The study itself proceeds through several iterations, with the researcher moving towards more concrete and abstract activities to refine the explanation of the phenomenon that is graduate attribute development (Blundell 2007). Each stage (except the first) involves moving between different levels of abstraction. As discussed in Chapter 4, both abstraction and concretisation provide two different types of knowledge about reality; both are important but are not to be confused or reduced to one another (Danermark et al. 2002). In Tsoukas' (1989, p. 558) terms, the researcher is concurrently moving on two tracks, one of which is *up in the clouds* whilst the other is down to earth engaged in the details of 'case' material.

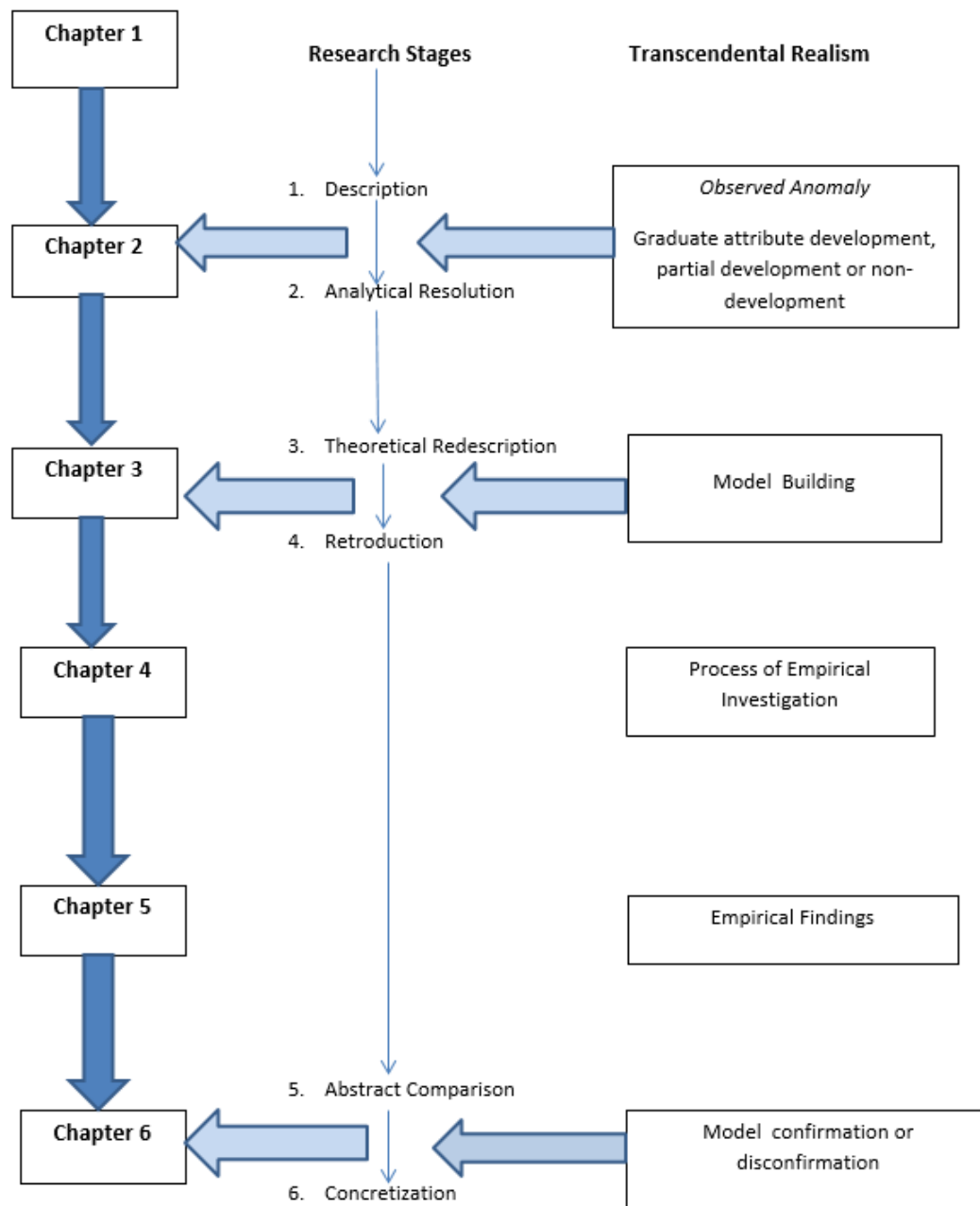
The research phases illustrated in figure 1.1 are bound first and foremost by the researcher's ontological beliefs as related to the research paradigm of critical realism. Principal features of critical realism that will be encountered in this thesis (and discussed in Chapter 4) are critical realism's world view; structures, mechanisms, causal powers, stratification and emergence, and retrodution (previously noted).

Bhaskar's (1975) process of transcendental realism provided the first influence upon the structure of the thesis (see figure 1.1). The thesis 'proper' starts in Chapter 2 (following the overview provided here in Chapter 1). Chapter 2 provides the starting point for an explanatory approach to move this study forward, employing Sayer's (2000) explanation of critical realism as a philosophical approach to studying the social sciences. The *first stage* is to describe the events using the interpretations of the persons involved to the fullest and making full use of qualitative data. Unlike



more traditional thesis formats, the order in which such events are discussed, with logic and insights drawn, is related to the process proposed by Danermark et al. (2002) and shown in figure 1.2. The stages of this process fall vertically under the heading 'Research Stages'. Following Chapter 6, the thesis concludes with a brief epilogue reflecting on the researcher's journey. Hence, it is the requirements of the chosen method that drive the nature of the thesis structure.

FIGURE 1.2: THESIS STRUCTURE AND TRANSCENDENTAL REALISM



Essentially, transcendental realism requires the development of a model to explain the observed anomaly in graduate attribute development via empirical scrutiny. Within the context of transcendental realism, the process of retroduction was essentially used as the model building instrument, consistent with Bhaskar (1979), through which the postulated operation of a number of mechanisms were formulated from the cognitive resources of the researcher. During the *second stage* of the explanatory approach, the process of retroduction was advanced by moving from the concrete to the abstract by dissolving the composite and complex, and by distinguishing the various components or aspects related to the events being observed (Danermark et al. 2002, pp. 109-110).

It is important to note that in reality the six stages (figure 1.1 and figure 1.2) of the explanatory approach were not used in a strictly linear manner. Consistent with Danermark et al. (2002), the six stages tended to be used in an iterative and interwoven way. This flexibility was vital as the researcher was able to move backwards and forwards whilst attempting to synthesis the various forms of data with emergent thoughts and insights. Such plasticity between steps made possible the eventual isolation of components assumed to be present for graduate attribute development to be enabled. In summary, Chapter 2 captures the researcher's initial journey into the field, reporting on observations, experiences and insights from students and fellow educators: the critical research issue being the emergence of several factors believed to comprise the foundational elements of a postulated model of graduate attribute development, defined in the context of a

preliminary research proposition. Therefore, the starting point of the transcendental realism achieved for the researcher and the consideration of any underlying mechanisms commenced. Through the identification and isolation of components, the process of retroduction had begun with exploratory conjectures provisionally promoting multiple configurations of a model of aligned learning for graduate attribute development. Importantly, the process of considering the nature of contingent conditions that might support/suppress any such model had also begun. Therefore, a speculative 'bridge between what is experienced (by the researcher) and what mechanisms must be real (for the model to exist) vis-à-vis specific events (and/or conditions) was incrementally developed to advance the process of model-building' (Jones 2009, pp. 263).

In Chapter 3, the iterative process of moving between steps continued, consistently using retroduction reasoning. Student, educator and learning environment factors emerged from the literature as likely components in a model of graduate attribute development. During Chapter 3, the value of retroduction to unearth new ideas flourished, and assisted in the process of theoretical redescription (Stage 3), providing a pathway for the researcher to explore (within the relevant literature) and give confidence in each component identified as being part of the proposed model. So through the discovery of ideas and concepts in different domains (yet relevant to the study), this nurtured the researcher's curiosity and in turn confidence in the preliminary model for graduate attribute development. Of note,

the fourth research stage (Stage 4 - Retroduction) was now occurring across and within each of the first three stages described so far.

Throughout Chapter 3, as the suitability of each factor of the proposed model was considered, a number of postulates were developed to facilitate empirical scrutiny. Therefore, as noted by Jones, 'a natural and seemingly pure link was made between the researcher's observations, exploration of various fields of literature and the requirements of science that would provide judgement on the model's potential usefulness' (2009b, p. 264).

As shown in figure 1.2, through the research Stages 3 (Theoretical Redescription) and 4 (Retroduction) the research method and findings were presented. Investigating the presence of factors that are largely invisible by nature, and that have already occurred (as noted in the research proposition) is a challenge for a researcher. The challenge extended itself for the researcher to not focus on finding the appropriate methodology, but rather to *find oneself* as the researcher within the overall process of the investigation (discussed elsewhere).

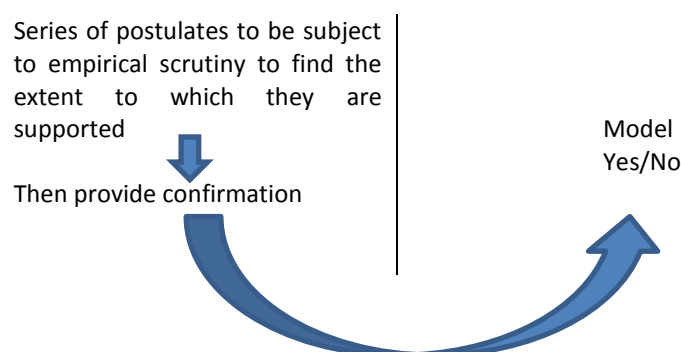
The mixed-methods approach outlined in Chapter 4 is the outcome of the researcher's search for 'self' within this study. As a chapter, it has also been partly formed by the aforementioned events and processes discussed in the previous chapters.

As the researcher progressively moved from one postulate to the next, a sense of confidence emerged in the various emergent themes drawing together and

providing clarity to the provisional model, and sense to an otherwise significant amount of data. In the spirit of ecologist Paul Sears (1980, p. 223), through the research stages so far the researcher had seen ‘not merely what is there, but what is happening there’.

In Chapter 6, the method (outlined in Chapter 4) and data (as presented in Chapter 5) combine with the researcher’s capacity to describe the necessary structures, mechanisms and conditions for the proposed model’s operation and/or suppression. Thus, the explanatory power (figure 1.2 Stage 5) of the model comes to life during this discussion chapter. Confirmation of the proposed model’s operation (or disconfirmation if the necessary structures, mechanisms and conditions are not present) provides opportunities for consideration of other mechanisms and conditions that lie beyond this study to further scrutinise the model (Stage 6). Figure 1.3 depicts what a ‘confirmation/disconfirmation test’ may look like:

**FIGURE 1.3 CONFIRMATION/DISCONFIRMATION TEST**



While critical realism engages with reality, it recognises that the evidence derived from empirical evidence is put together with a rational process of model building.

And once the rational models are built, if they are causal models, then researchers can consider the implications for practice and intervention, for example:

An educator may further employ reflexivity (a mechanism) as a pedagogical approach, yet may not consider the 'conditions' for reflexivity (such as opportunity for practice) to act as causal mechanisms, with the power to change a student's habits of thought which may enable graduate attribute development.

If 'intervention' leads to model predicted responses when observed again, then a researcher can consider that a confirmation of the underlying model has occurred. When there is no confirmation then the researcher may consider why not. Over time we may achieve a balance of examples of confirmation and disconfirmation in revisiting a model.

It is important to note that this study does not aim to test causality in a positivist sense, but rather, to offer a model of graduate attribute development that others can also consider. I digress for a moment to highlight the importance of the difference between causality and correlation which is important in the context of this study.

Scott and Usher point out that even if correlation can be established between two variables it is still not possible to assert, in an unproblematic way, that one caused the other to happen. There is always the possibility of a third variable causing variance in both variables and we can never be sure about which variance occurred first (1999 p. 70). So, regularities between phenomena that produce correlations cannot in *themselves* uncover causes. In other words, regularities produced rarely

do not relate in a straightforward manner to the causal mechanism which produced them.

Bhaskar (1979) makes an important distinction between epistemology and ontology (that will be discussed further in Chapter 2) in which he argues that epistemology is always transitive and therefore is substantially a product of the prevailing power relationships in society. On the other hand, ontology, in regard to the human sciences, is relatively enduring and so has a degree of intransitivity about it. Importantly Bhaskar (1979) makes this distinction in his refutation of positivism and its insistence on the atheoretical nature of data and to cement in place his version of transcendental realism, which he characterised in four ways:

- 1) knowledge is *fallible* as any claim to knowledge may be open to refutation;
- 2) there are *objective truths* whether they are known or not;
- 3) there are *transphenomenalist* truths in which we may only have knowledge of their appearances and not necessarily of underlying structures and causal mechanisms; and
- 4) there are *counter-phenomenalist* truths in which those structures actually have misleading appearances, that is those appearances may be in conflict with the mechanisms that sustain them.

There are two consequences of this division between appearance and reality. First, the designation of correlations does not necessarily lead to the uncovering of causes. If we conflate the two, we are guilty of what Bhaskar (1979) calls the *ontic* fallacy, the 'unjustified conflation of the epistemological and ontological realms' (Scott & Usher 2003, p. 80). In other words, regularities do not relate in a straightforward manner to the causal mechanism that produced them. This can best be described by way of an example that relates to this research:



when students employ deep learning approaches and strategies this does not cause graduate attribute development.

There may be two reasons for this. First, as mentioned above, a third variable may have acted on both to create the pattern observed (graduate attribute development). Secondly, as Bhaskar suggests, 'deep structures may have contradictory appearances', so educators need to be mindful of ascribing causal relations to the observed 'constant conjunction of events' (Gardner, Cairns & Lawton 2000, p. 208).

Therefore it is hoped this approach will allow the researcher to access new perspectives on the development of graduate attributes and go some way to offering guidance to educators in partnering with students to find new ways of being in higher education, in becoming more capable, self-regulated individuals with increased self-efficacy through a model that may challenge existing views and approaches to graduate attribute development. Bourne perhaps captures the essence of this study:

Today's education largely trains for adaptation to the status quo... and while adaptation has its place, it is incomplete and confining: if your ideal is adjustment to your situation... then your success is likely to be just that and no more. You never transcend anything. You grow but your spirit never jumps out of your skin to go on wild adventures (Bourne, 1977, cited in de Souza, Engebretson, Durka, Jackson & McGrady 2006, p.334).

In summary, the reader has been introduced to the researcher's motivation for this study, and provided with an overview of the value of graduate attributes and the

challenges facing higher education in their development. The research opportunity has been presented by way of a working proposition, and critical realist evaluation principles explained along with the study's anticipated contributions to theory, method and practice, and the importance of retroduction and how it influences the structure of the thesis. It is now time to consider in detail the meta-reflections of the researcher on the learning and development of students, and engage with the literature to determine the comparability of the researcher's perception of the challenges facing higher education, specifically in the development of graduate attributes which will lead to a working research proposition.

**The road less travelled: Making the ontological shift**

## Chapter 2: The road less travelled: making the ontological shift

### 2.0 INTRODUCTION

This chapter commences with an introduction to the thoughts and feelings of the researcher on learning and development of students, so the voice of the researcher again emerges. These reflections are informed by the researcher's experience of teaching and learning in higher education and in other learning settings. These reflections include personal observations of students engaged in learning, conversations with other educators and colleagues, and discussions with past and current students. Together they provide insights into what the researcher perceives as 'typical' students in higher education, in the context of graduate attribute development, and offer the researcher's view of the key challenges facing educators, students and the higher education sector.

Along the way the researcher identifies various structures present in the student higher education cohort. This identification lays the foundation for further insights into what are seen by the researcher as potential unobservable psychological, social and physical processes that when 'activated' may enable a change in the student *structure* increasing potential for graduate attribute development. Furthermore, the notion that these unobservable processes may be mediated by the presence or otherwise of certain conditions which may (or may not) be considered as conducive to the learning process and graduate attribute development. This meta-reflection of the researcher's own personal and professional learning journey culminates with

the researcher's teaching philosophy. This chapter then highlights the researcher's interest in graduate attribute development and offers a rationale for the study's specific focus on the attributes of communication, problem-solving and social responsibility.

Next, the researcher returns to the broader discussion of Chapter 1, adopting a third person stance, whilst tentatively engaging with the literature to determine comparability of the researcher's perception of the challenges facing educators, students with the higher education sector in developing graduate attributes. In doing so, reference is noted to the perceived shortcomings in the literature on strategies for developing and judging graduate attribute development. These are considered in light of the ongoing concerns expressed by employers and other external stakeholders of graduates' preparedness for work and for the challenges of successful lifelong learning.

Therefore, the process employed for this chapter relied upon multiple sources of qualitative data, derived from a number of sources across varying temporal and spatial boundaries, to identify and comprehend the factors that may be at play impacting on graduate attribute development. Hence, a process of analytical generalisation rather than empirical generalisation was used 'to clarify the necessary and contingent relationships between structures' (Danermark et al. 2002, p. 105). The chapter concludes with the presentation of a working research proposition, expanded from 1.6, providing the focus and direction of the thesis.

**2.1 PRELIMINARY OBSERVATIONS—THE RESEARCHER’S EXPERIENCES AND OBSERVATIONS ON LEARNING AND DEVELOPING GRADUATE ATTRIBUTES**

Since I ventured into academic life some nine years’ ago, following 25 years as a corporate facilitator specialising in personal and organisational change and development strategies, a number of questions have continued to plague me in explaining the transformative process that may enable graduate attribute development . I have remained curious about what needs to exist in today’s learning environment for students to think, learn and show such skills, in particular communication, problem-solving and social responsibility skills, all examples of typical graduate attributes. Further to this, I continue to wonder if we as educators can explain and critique what I sense are factors which seem to be mediated by certain conditions that may account for any such transformation in students. I am curious to know what these factors and conditions are, how they interact and combine, and the extent that each may ‘enable’ graduate attribute development.

I have noticed through my musings on my learning journey, that even when I sense certain ‘critical factors’ are present, some students still don’t develop graduate attributes, or do so to only a partial extent. I am interested to know if these, what might be termed *irregularities* in student graduate attribute development, arise as a result of variances in how educators use the pedagogical space, or perhaps they occur due to innate student differences — or is it more complex than that? Is it that when the right combination of what I understand to be unobservable psychological processes are at play at any one time, that graduate attribute development occurs?

Here I draw upon the metaphor of electricity to explain my thinking on why factors and conditions I believe are unobservable. The concept of electricity can be difficult to understand because we cannot see electricity, much like graduate attribute development. One cannot see with the naked eye the energy flowing through a wire or, for example, the psychological processes affecting a student's ability to develop communication or problem-solving skills. We cannot see the movement of electrons that create charge to illuminate a light globe, nor can we see the impact of the pedagogical space on graduate attribute development.

Much like electricity for a light bulb to glow brightly (or for graduate attribute development to occur), current flow (measured in amps) is a function of force or pressure (volts) and resistance (ohms). Resistance is analogous to constraints in the learning environment, meaning that learning (like electric current) is a function of the driving force or pressure or potential difference (volts) and constraining (resisting) factors. I like to think of students who have developed graduate attributes as light bulbs glowing brightly, the right amount of amps and voltage creating watts. On the other hand, those light bulbs that are 'dimmer' may not have the amps and voltage needed for full illumination. In other words those students not brightly 'illuminated' may not be exposed to the combination of factors and conditions for graduate attribute development. I use figure 2.1 to show student 'irregularities' and the 'brightest' versus 'dimmer' student development of graduate attributes whilst acknowledging that all students, as the light bulbs, are different.

**FIGURE 2.1 THE LIGHTBULB METAPHOR OF GRADUATE ATTRIBUTE DEVELOPMENT**

I further explain how I see the factors and conditions in play that may enable graduate attribute development through lens of a critical realist. The concept of critical realism is explained in detail in Chapter 4, but it is pertinent to introduce my thinking here and to set the scene for a deeper discussion later. I use a simple analogy of gunpowder exploding to explain the proposed relationship between factors and conditions as follows:

*Gunpowder (in this context the student) is made up of chemicals (structures) and has the power to cause an explosion (a power); however it needs a spark (a condition) for this to occur.*

So by way of this analogy, a student has certain structures which can be altered to enable graduate attribute development if the right powers and conditions are in place. You will note in the following in context example which also sees factors replaced by powers and conditions. In the context of graduate attribute development an example could be:



A student's habit of thought (structure) is capable of being changed, if he/she has opportunities for reflection (power) under certain conditions (authentic learning experiences).

Such a change in behaviour, from a critical realist perspective, may enable an event to occur (graduate attribute development). What I have noticed, is that if students have the opportunity to apply their thinking to contemporary real workplace issues, and spend time reflecting on this experience, are supported by an educator who nurtures self-discovery, then it is possible for a change in 'habits of thought' to occur. Such a change in thought may give rise to students adopting different ways of communicating or negotiating a problem.

Having introduced my thinking about the unobservable structures, processes and conditions that may be at play in graduate attribute development, I now move to explaining my observations of what these structures might be in the context of developing graduate attributes. My sense from my reflections, observations and conversations is that structures in relation to students are the characteristics, attitudes, aptitudes and dispositions present in any student cohort.

My reflections suggest that these structures have the potential to influence both the student experience and learning outcomes. As an educator I feel compelled to discover how I can manage these 'structural' differences or irregularities and support students to perhaps re-learn attitudes towards the educator-student relationship. My experience, student feedback, and discussions with fellow educators suggests that today's educators have a role to help students identify

what learning experiences may serve as validating mechanisms for them in response to their innate differences, in order to foster deep learning strategies and build their self-confidence, capability and develop a sense of *self*.

I return to the gunpowder analogy and the power it has to cause an explosion (the process) when the condition of a spark is present, but *only* when the enabling condition of a spark is present and constraining factors or conditions like dampness are absent. Reflecting on my teaching and learning, it seems that at any one moment in the learning experience a number of unobservable *psychological, social and physical processes* could be at play impacting on the learning experience. As such any of these processes may have an impact on the extent to which graduate attributes are developed, providing the optimal conditions are in place. For example, my sense is that a student's adaptability (structure) can be influenced if a psychologically safe learning environment is provided by the educator (power), with the condition of emotional engagement with the learning experience.

My experience tells me that to foster student 'validation' in the learning environment and to respond to the changing student profile in higher education, may mean educators rethinking traditional models of teaching and learning with a shift to more *student-considered* approach. I believe that the role of today's educator is to create the conditions that can help students learn and to realise that learning fundamentally relates to guiding students' self-recognition of their internal knowledge, a fundamental shift from long-held beliefs that learning relates to understanding external bodies of knowledge. My belief about learning is that it is

less about the knowledge of the educator, and more about the support an educator offers as the student avails himself/herself of opportunities to explore ideas, values and beliefs, encounter successes and failures, and discover new ways of being in the world.

Furthermore, my experience, observations and discussions with colleagues have drawn me to the *tensions* that seem to exist for educators' regarding their role in enabling graduate attribute development. What I have observed is often a preferential focus by educators on the content rather than the process of learning and the attributes, such as communication skills, developed through the process.

The words of Barnett resonate particularly well here:

learning for an unknown future has to be learning understood neither in terms of *knowledge* or skills but of human qualities and dispositions (2004, p. 247).

I am comfortable with the belief that there is a changing role for the educator-student relationship even though I feel this is sometimes seen as a somewhat radical move for educators and students away from the skills and lists of competencies towards an ontological perspective, but it is a move I feel needs to be made. This personal view of learning being about the process and not merely passing a unit, sees learning more as a journey for students in which new relationships are formed with educators and other students. My experience, observations and conversations tell me that when students report that doing a unit of study has changed them (in this context, supported their development of

graduate attributes), this may have to do with an epistemological change in the educator and the student, that is, how each sees reality. Such a change may help students to fulfil their potential as empowered and constructive members of the community who are prepared and excited for their future.

This line of reasoning regarding an ontological shift is supported by students, researchers, educators and employers with whom I have engaged in my role as an educator. I have come to believe that the complex world we may see today's knowledge possibly becoming redundant in some areas. I am reminded here, of the quote from the evolutionary biologist Leigh Van Valen (1973), who was inspired by the Red Queen character, from Lewis Carroll's *Through the Looking Glass*, who tells Alice, 'It takes all the running you can do to keep in place'. Van Valen used the Red Queen (as shown in figure 2.2) as a metaphor for his evolutionary principle that regardless of how well a species adapts to its current environment, it must keep evolving to keep up with its competitors and enemies who are also evolving. Does it not then become imperative for educators to guide students to develop the attributes needed to keep up with constant change in both their personal and professional lives whilst engaging and identifying creative means of developing such attributes?

**FIGURE 2.2 THE RED QUEEN**

On further reflection it appears that, despite the best efforts of educators to individualise the student experience, opportunities to tailor the content, pace and pedagogical approaches are seen as limited. Students are expected to work with their assigned material and move along with the 'collective' to complete a unit of study. Assessment methods are designed primarily to measure results of learning, rather than to improve learning as it happens. My observations generate a feeling of some discomfort, much like a small pebble trapped in a shoe, as I see students who are 'ushered on' despite an insufficient and limited understanding of how to apply knowledge. Many have inadequate maturation, leaving them with serious gaps in their ability to learn, adapt, innovate and respond to a myriad of challenges in the professional and personal world. Other students, whose *structure* seems to be different to that of their peers, are often denied the opportunity to explore beyond the unit's standardised curriculum. Learning experiences that are devoid of enriched and diverse opportunities can leave students detached, unfulfilled and ill-prepared.

At this juncture, I reflect on the travels of what I might call three 'typical' students I have encountered in my experience as an educator, each with his/her own identity and ability to respond to the challenges and potential 'roadblocks' which are a part

of the current one-to-many approach to teaching and learning employed in higher education. Each of these students potentialpredicaments concerns me. Let me introduce them.

Student 1: The story of 'Sam'

*Sam was an intelligent, self-directed, intrinsically motivated, and self-confident 3rd year student. Expressions that typified Sam were: 'I am curious about...' and 'When I was reading the article I started thinking about ...' 'I feel the video was particularly useful because ....' What I observed was that Sam was engaged in the learning opportunities which appeared in his easy grasp. He frequently asked questions and responded to unsolicited questions demonstrating deep learning strategies and higher order thinking skills. According to the SOLO Taxonomy (Biggs & Collis, 1982) he was arguably a student with the means to make connections outside the subject area and the ability to generalise and transfer concepts from the specific to the abstract (extended abstract level - Level 5). He showed a readiness and capability to apply new knowledge, skills and behaviours to novel situations, yet it appeared he was somewhat constrained by the learning and assessment opportunities provided. Sam remained seemingly engaged in his learning however; I sensed an impact on this experience for him. I saw the likely impact for Sam's learning as fewer opportunities to identify his own progress and challenges, and to tailor strategies and pathways towards improving attributes including communication, problem-solving and social responsibility skills.*

Student 2: The story of 'Isobel'

*Isobel was a student I didn't 'know'. She was physically present in most of her 2nd-year tutorials, responded to some solicited questions, submitted all assessments to a 'pass' or 'low credit' standard but was almost intellectually 'invisible' in the learning environment. She was arguably, according to the SOLO taxonomy (Biggs & Collis 1982) a student who grasped a number of ideas about the topic, but didn't always relate them to one another, or to the central question. Expressions that typified Isobel when prompted to engage ranged from: 'I don't know ....' to 'the video was good'. But, what did I know of Isobel's identity or capability? I have to say very little. She seemed challenged in making connections between concepts and 'real life' situations. I wonder, was my lack of 'knowing' Isobel because of the 'known' but undiscussed belief (by educators and students alike) that students are regarded as products of higher education and that the individual being of a student is not considered. I have to admit that I did not always see Isobel (and some others) as beings with individual attitudes and characteristics. I*

*felt conflicted by this as I had a desire to facilitate deep learning and student engagement yet was ill-equipped to respond to such a diverse student cohort. So I ponder, what wasn't happening for Isobel? Arguably Isobel was performing adequately to complete her unit of study. However, I felt there was no educator-student relationship to support her to become more self-directed: to make the connection to real-life experiences. Neither Isobel nor I engaged in what I would term meaningful, formative, real-time, diagnostic assessment. This lack of a partnership would be hard to see, as whilst Isobel's performance continued to be satisfactory, she always looked for instruction on tasks and there was minimal sharing of feelings by her as to her satisfaction with the learning experience. I wondered then what is the impact of this for Isobel's learning? She may not develop meta-cognition—that understanding of how she learns and who she is as a learner. She may also not experience opportunities that heighten self-awareness and self-confidence which is needed to become a better learner and to develop higher-order skills, dispositions and attributes such as effective communication skills.*

### *Student 3: The story of 'Bryan'*

*Bryan was a 3rd-year international student who was challenged by his oral and written communication skills. He was quiet, appeared self-conscious with low self-confidence. Expressions that typified Bryan were: 'I am not sure about ...' and 'Can you tell me what I need to do ...' What was happening for Bryan was he seemed to avoid or did not fully engage in learning experiences that required communication, collaboration, problem-solving, meta-cognition and critical thinking. Bryan was focused on explicit directives from the educator on what was required to pass the subject. He adopted a 'follower' role in group learning and seemed reluctant to seek out English language or academic support. He adopted a surface approach to learning and his competence in relation to the SOLO Taxonomy (Biggs & Collis 1982) was either Level 1: pre-structural (misunderstanding) or memorisation (Level 2: uni-structural). Bryan also showed a reluctance to pronounce English words perhaps for fear of failure in front of the evaluative eye of other native speakers. Some of the implications for Bryan are akin to those for Isobel. What I have noticed with students like Bryan is that many international students are able to quickly acquire a disciplinary 'know-how', but feedback from educators suggests there are deeply contrasting expectations of educational practice between educators and such students in higher education. These differing expectations result in, as in Bryan's case, problems such as poor English language and critical thinking skills, failure to participate in the collaborative learning opportunities (for example, group discussions), differences in cultural communication, academic literacy styles, and a tendency for rote learning. The impact for Bryan's learning is likely to*

*include a lack of independent learning initiatives such as reflection, and poorly developed communication and problem-solving skills.*

These depictions of what are seen as ‘typical students’ further illustrate the belief that educators need to bring the conversation of developing graduate attributes to the forefront of higher education, given the importance of preparing graduates for effective participation in professional, personal and community life and to increase their awareness of social problems, and strengthening their education in search of solutions to those problems (Reason, Ryder & Kee 2013). Higher education, as echoed in the literature, has a ‘civic mission and this means preparing graduates to engage in community life and being able to effectively communicate across demographic, ideological and political differences’ (Hamrick 1998; Hurtado 2007; Reason et al. 2013). Hence, to respond to the needs of today’s graduates, educators need to concern themselves with developing a student’s capability and identity, and not just embedding discipline-based knowledge and skills. This leads me to consider the importance of the learning environment to graduate attribute development.

## **2.2 THE ONTOLOGY OF THE LEARNING ENVIRONMENT**

I ponder the ontology of the learning environment and its relevance to curriculum design, pedagogy and learning. My experiences lead me to believe that, as the research purports, the learning environment (LE) is not merely the context of learning but, more significantly, the set of conditions that enable and suppress learning (Brown 2008). I concur too with Greenfield (1984) who argues that the LE



needs to provide collaborative learning where 'able' partners, (educators-students and students-students) can assist with scaffolding and coaching, as well as the means for the educator to support learning, such as through appropriate communication technologies.

So what is that experienced educators know that enables them to establish effective LEs? I pause and consider the description of the LE by Brown (2008), described from a critical realist perspective. He suggests that in any critical realist study the typical starting question is: 'What must x be like in order that knowledge of x is possible?' When applied to developing a critical realist model of the LE, the question then is modified to:

*'What must the learning environment be like in order that knowledge of it is possible?'*

To answer this I refer to Brown (2008) who suggests LEs are real and relational, open systems that are stratified, emergent and moral. I concur that LEs are real in that their elements exist whether or not I have knowledge of them. In the social world for example, relations such as student-educator or student-student exist whether we have knowledge of them or not, as do social rules, the meanings of texts and the reasoning and beliefs of students and educators.

Furthermore, educators and students are causal agents in that their values, beliefs and reasons are causes of their behaviours. Importantly for the LE, meaning is also causal, as a central purpose in a LE is the creation and sharing of meaning (Brown

2008). Other researchers such as Archer (1995) provide important advice to the researcher, as she argues that meanings are causal and therefore ontologically real. The recognition of beliefs, values, meanings and reasons as real causes 'obliges' the researcher to investigate these aspects of the LE (Brown 2008, p. 227).

I am curious to know the *extent* to which educators consider the values that underpin their pedagogical choices are *lived* in the LE. In relation to this I have some discomfort when I reflect on observations and conversations around how an understanding of the LE is used by educators to respond to individual student needs.

I am again drawn to Brown (2008) who reminds me that social systems, including LEs, are inherently 'open' systems in the sense of responding to both internal and external factors, and changing over time. The realist assumption of open systems represents a basic departure from assumptions that underpin centralised curriculum development, assessment, and resourcing including 'staffing' (Brown 2008). Taking LEs therefore, to be open systems with multiple causes operating, draws my attention to the variability of the students I encounter. Given the unique nature of each student it is fair to suggest they are individual in the way they engage with, and respond to, pedagogical approaches adopted by an educator; and yet I wonder if the LE reflects this student individuality (Brown 2008)?

My experience also tells me too that learning environments are changing and self-reflexive entities; they are also stratified and emergent. Brown explains that

learning itself is 'such an emergent property, emerging from causal powers, dispositions and tendencies that necessarily arise from the strata in the learning environment, which is an open system' (Brown 2008, p. 229).

I am comfortable with the idea that LEs are also moral environments. Educators and students are causal agents whose reasons, beliefs and values cause them to act in certain ways. As learning is inherently value-laden, I believe that there is a moral question for educators and other stakeholders, as to the most appropriate way to respond to the moral character of the LE (Brown 2008). My reflections lead me to believe that educators have a role to create LEs where students can develop the capacity to make moral judgements through opportunities for responsibility taking and guided reflection.

My reality tells me if the possibilities for knowledge are found in the LE then, at least in part, the closer the approximation of the LE to the aspect of the natural or social world being studied, the greater the opportunities for students to 'move down and into' the information. This has been termed the 'approximation factor' (Brown 2008, p. 230). While in particular instances other factors may be significant, such as a student's individual capacity for learning, the approximation factor nonetheless makes sense. This potentially gives an educator a definition of and criterion for judging or defining concepts such as 'student-considered learning' which may increase the potential for students to develop graduate attributes. For the researcher this view of *student-considered* learning is that curriculum or pedagogy is authentic, to the extent the LE (including learning and assessment

activities) approximates the element of the natural or social world being studied. Again I am conscious of the pebble in my shoe and an element of discomfort. I acknowledge the pebble and am aware of the constraints facing educators and limited student opportunities to explore ideas and come up with innovative and appropriate responses to challenging situations.

Conversations remind me that many educators are not confident if their espoused theories manifest themselves in pedagogy that foster deep engagement and the potential for graduate attribute development. I wonder if the dispositions of curiosity, initiative, resilience, adaptability and agency (that students need to allow them to broaden and deepen their knowledge), are nurtured based on students' or educators' interest and motivations (Archer, 1995). Through ongoing reflection and empirical scrutiny I gain *some* sense as to how and what my students learn, as well as how I can best engage them in the learning process, yet I still ponder if educators can create a meaningful LE without knowledge of individual student needs. This gives rise to a certain ontological dilemma for me as the researcher.

### **2.3 THE ONTOLOGICAL DILEMMA**

My reflections and discussions with colleagues and students have led me to review my implicitly or explicitly held assumptions regarding the nature of the reality of students' learning, and of my own ability to know their reality. Whilst it is important for me to know why and what challenges students encounter on their learning journey, I accept that I live in a world where I am surrounded by invisible factors which under specific conditions can create events that I may, or may not be

able to totally appreciate nor understand. So my position in the world is that of a critical realist (Popper 1972).

My position as a critical realist therefore differs from that of a positivist or constructivist. I hold the World 3 view as proposed by Popper (1972), that the world is related to abstract things born from people's minds but which exist independently of any one person (and is therefore related to realism). This view is in contrast to Popper's World 1 (a positivist view that the world is objective and contains material things) and World 2 (a constructivist view that the world is born from the subjective mind). I hold that reality, whilst real, can only be imperfectly known, and that it exists independently of any individual, be it student or educator.

#### **2.4 THE RESEARCHER'S TEACHING PHILOSOPHY**

Throughout this chapter I have made reference here and there to my beliefs and concerns regarding the nature of student learning and graduate attribute development. It is useful here to gather these thoughts and pause to consider 'how does my way of being infuse my approach to teaching and learning?' Philosophically, it is my way of being with my students as an educator that influences student learning. In my view, content is not the subject, the subject is the question I ask of the world and the content is whatever current answer I ascribe to the question. This philosophy echoes the ideas of Prosser and Trigwell (1997) who see learning as conceptual development and change that requires the educator to facilitate and achieve a delicate balance between bringing out students' knowledge while co-constructing knowledge with them. Such an educator-student

*partnership* may help students strengthen their positive psychological states building capability and sense of identity.

The reflections, observations and conversations have created some concern and discomfort for the researcher in relation to the reality of graduate attribute development but have also validate the potential significance of this research.

It is timely to further explain (see 1.4) the graduate attributes that the research will focus on and why.

### **2.5 THE RESEARCHER'S INTEREST IN THE DEVELOPMENT OF SPECIFIC GRADUATE ATTRIBUTES**

First, I reflect on the value of communication skills as a graduate attribute and expand the initial discussion in Chapter 1. It is my belief that developing communication skills is important as it prepares students to better engage through their assessment, enter into dialogue with peers and academics, and formulates questions to further their learning. It is also integral to preparing for various professional environments. As noted in 1.4 effective communication skills are essential for graduates to gain entry to and be successful in their future professions, and developing effective written, oral and interpersonal communication skills are likely to play a part in developing students' emotional intelligence, positioning them as global citizens.

Furthermore, today's graduates will need high-level written and oral communication skills for a range of audience needs. They need to be able to communicate an argument or point of view in a succinct and logical manner, and

articulate it to individuals and groups in an engaging and confident way across multiple settings.

Communication skills are operationalised in various ways in 2nd and 3rd-year units offered by the Tasmanian School of Business and Economics (TSBE). The following examples from units where data was gathered for this study exemplify these differences in how communication skills are operationalised:

*BMA236 Festivals and Event Management:*

*Written communication and presentations skills of a quality and manner appropriate to festival and event management.*

*BLD301 Project Evaluation and Planning:*

*Ability to engage in persuasive, succinct oral discussions to communicate and influence other persons.*

Appendix 2 provides extracts of all the 2014 TSBE (BMA - Management and BLD – Australian Innovation Centre) units from where data were gathered for this study and includes the two units named. The extracts show how graduate attributes are operationalised in the various units.

Second, with reference to problem-solving skills my experience suggests that learning in higher education rarely encompasses the context and support needed for solving real-world problems. The literature considered the context of the area of research interest highlights that in everyday life, people solve problems and learn new and better ways to do things by assessing a problem and then using their existing knowledge together with the context, resources and means available to

them (Herrington 2015, p.61, cited in Bozalek et al. 2015). In a higher education learning environment educators appear to guide students to solve problems in a manner which will not necessarily serve them in the outside world. My experience in higher education and the corporate sector has been useful and shown me that people don't always employ a logical, sequential manner to solve a problem, and may simply try one solution based on the best evidence possible, then try another until a successful outcome is achieved.

To respond to this challenge, and to what appears to be emerging in the research space, educators need to embrace authentic learning that is student-considered, to develop the problem-solving skills required for the changing nature of day-to-day life. A theme that is emerging in the literature is that through observing problem solving in the real world, and situating learning in the context of its future use, authentic learning is a viable model for facilitating learning in higher education.

A review of the literature acknowledges that problem-solving skills are essential in order for students to successfully navigate work-based or relevant and complex issues in personal and professional life (AC Neilson 2000; Gabric & McFadden 2001; Clanchy & Ballard 1995; Kavanagh & Drennan 2008). Authentic work-related problems may assist in developing important skills for career development and/or lifelong learning opportunities, or at least support student readiness for such encounters. Evidencing problem solving skills can indicate a student's ability to think critically and solve authentic real-world problems that are relevant to future working environments.



Problem-solving skills are operationalised in various ways in 2nd and 3rd-year subjects offered by TSBE. The following examples from units where data was gathered for this research exemplify these differences:

*BMA341 Industrial Relations:*

*Think logically, critically and creatively to solve problems related to the practice of industrial relations. Identify contemporary industrial relations issues and recognise potential issues in a business context.*

*BMA218 Planning and Running Sports and Recreational Events:*

*The ability to apply logical, critical and creative thinking to complex sports and recreation event management related problems.*

*A critical grasp of theoretical frameworks and practices, and the ability to integrate and apply those frameworks to problem solution in a sports and recreation event management context.*

The third graduate attribute skill I am interested in is social responsibility. My personal experience has highlighted the challenges of bringing the conversation of developing social responsibility to the forefront of pedagogical space. It is important to me, given the array of social problems that exist in society, that graduates complete their degree with an increased awareness of social problems and a strengthened capability to search for appropriate solutions. As an educator I continue to be challenged by the very nature of social responsibility. To me it is subjective, context-dependent, and interwoven with personal moral values, and is therefore more complex to embed in pedagogy.

It appears that educators are often unable to clearly define their role in educating for social responsibility and students are less likely to be involved in learning

opportunities that encourage social responsibility as they move through their undergraduate education (Reason et al. 2013). Authors such as Colby and Sullivan (2009) refer to social responsibility learning outcomes as ‘distantly connected’ and a ‘by-product’ of higher education (p. 29). Comments from educators and my own experience suggest that this could be partially attributed to the pressure on educators to produce grants, research and publications often then *crowding out* the learning environment, and reducing the emphasis on developing this and other graduate attributes.

Educators have commented, as echoed in the literature, that they may de-emphasise or avoid learning opportunities that promote dialogue with students related to politics, religion, economics or race relations (Reason et al., 2013). Some educators report a fear of imposing their own values on students, whilst others believe that morality is an inherently personal issue or that teaching and learning should be restricted to analytical skills and discipline or subject matter (Hersh & Schneider 2005). There is also a valid argument that higher education inescapably influences students’ values and ethical development. As pointed out in the literature, ‘education inevitably affects character, either intentionally or unintentionally’ (Berkowitz 1997, p. 18). However, Kuh (2005) and the feedback from educators note support for facilitating the development of the whole student has declined. My observations, reflections and other literature reiterate this comment, as it appears that educators receive minimal support or preparation to address ethics, values and social responsibility, and often shy away from helping

students to connect the values implications of their unit topics and themes with students' own lives (Hersh & Schneider 2005).

It is argued that any perceived lack of support for educators has implications for pedagogy adopted by the educator. As Dall'Alba and Barnacle (2007, p. 683) suggest, students don't need to know about social responsibility, rather 'knowledge is understood and created, embodied and enacted,' so educators need to find ways to position social responsibility in the lived experience of students and assist them to ascertain its relevance to their daily lives.

Another potential reason for the under-development of social responsibility is mentioned when I reflect on students I have encountered such as '*Sam*', '*Isobel*' and '*Bryan*'. My sense is that as students move beyond their first year, they may become more focused on personal areas of interest such as social networks, employment and graduation and grow less engaged in learning activities. This belief is supported by authors such as Checkoway (2001a). Whether students become less involved, and therefore perceive less higher educational emphasis, or less higher educational emphasis results in less student involvement, is not clear to me at this point in time, but the combination of decreased involvement and decreased perceptions of higher education emphasis may create an environment in which the development of social responsibility is difficult to maintain over time (Reason et al. 2013).

One way that social responsibility skills are operationalised in a 2nd-year unit offered by TSBE in 2014 (and part of this study) is in the following example:

*BLD202 Foundations of Entrepreneurship:*

*An awareness of global perspectives and issues of social responsibility related to the process of entrepreneurship will be developed during discussion in the workshops.*

It is noted that in some units where data was collected, social responsibility was not articulated as a graduate attribute to be specifically developed. At this juncture it is useful to return to the literature initially considered in Chapter 1 and highlight the importance of addressing graduate attribute development and the challenges that have been highlighted in the literature.

My reflections on my teaching and learning journey, and commentary by colleagues, lead me to believe that despite a level of recognition regarding the changing role of higher education there are challenges for educators in developing graduate attributes. As introduced in Chapter 1 and considered as part of my reflections in this chapter, one such challenge is the development represented by a shift from the traditional curriculum focus on content and knowledge to one which emphasises *process* (Ewan, 2009). Educator 'disengagement' with graduate attributes is cited by Radloff (2009) as another challenge, so is the concept that focusing on attributes can encourage the idea that each attribute is an entity in itself that can be separated and measured in isolation. However, my observations,

conversations and experience tell me that in practice graduate attributes overlap and are entwined with the content and the intended learning outcomes.

This brings me to an important juncture in the road to graduate attribute development. I feel as if the road ahead is less travelled and requires educators to embrace a number of steps to engage with the *potential* of students, yet the challenge is that 'while there is a plethora of research investigating the development of graduate attributes, there is still some uncertainty' about how graduate attributes are best developed (Smith & Bath 2006, cited in Kember 2009, p. 39).

As I ponder my students' destinies and the role I have as an educator to support them on their learning journey, I am cognisant that many Australian higher education institutions have yet to develop clear strategies for developing and assessing graduate attributes within their specific disciplinary contexts (Barrie 2005; de la Harpe et al. 2000; Green et al. 2009). Adding to my concerns, and as outlined in Chapter 1, there is confusion about how graduate attributes should be taught, assessed and evaluated, and how their 'adoption should ultimately shape teaching practices in higher education' (Green et al. 2009, pp. 18).

## **2.6 CONCEIVING COMPONENTS AND BOUNDARIES**

At this point in time, it would seem perfectly reasonable to suggest that a model of graduate attribute development in higher education must consider the unobservable psychological, social or physical processes that have the capacity to act and interact in such a way as to alter the behaviour of a student leading to a

learning event, in this context, graduate attribute development. The model's operation would also need to consider the different mediating conditions that can vary considerably within the learning environment. Let us consider what has emerged from the discussion to date.

First, it would seem that a critical factor to emerge from the above discussion is the need to bring the conversation of developing graduate attributes to the forefront of higher education with a focus on building student capability and identity. There is pressure for today's educator to create the conditions that can help students learn and realise that learning fundamentally relates to guiding students' self-recognition of their internal knowledge. For educators, this means offering students opportunities to explore ideas, their values and beliefs, and encounter successes and failures whilst discovering new ways of being in the world. However, there appear to be tensions about how to integrate graduate attribute development with the pressing claims for content as the primary concern by educators.

Second, my reflections, conversations and observations suggest the components of an initial model of graduate attribute development appear to relate to the characteristics, attitudes and dispositions (or structures if considered from a critical realist perspective) of the individual student and educator, and the relationships that exist between and within each entity. These relationships have the potential to influence the LE and the student experience. The challenge then arises as to how to manage these 'structural' differences or irregularities, and to support students to *re-learn* attitudes towards the educator-student and student-student relationship.

Third, it seems that at any one moment in the learning experience a number of unobservable psychological, social and physical processes could be at play. These have the potential to impact on the learning experience providing the necessary conditions are in place. However, it is recognised from a critical realist perspective that as an educator it is not possible to fully know, understand or appreciate the reality of students' learning or to *categorically* know the extent to which any such factors or conditions may enable graduate attribute development.

Last, it would seem that the learning environment (LE) is not merely the context of learning but more significantly is the set of conditions that may enable and suppress learning. LEs are real and relational, open systems that are stratified, emergent and moral, and the closer the approximation of the LE to the aspect of the natural or social world being studied, the greater the opportunities for enabling knowledge of that element. Finally, my sense of possible influences on the development of graduate attributes appears to fit logically with the information found through literature from various domains.

In summary, this chapter has identified several factors believed to comprise the foundational elements of a model of graduate attribute development, defined (in the context of a 'preliminary' research proposition) at this point in time as:

*A combination of factors related to individual students, their educators and the conditions they interact within and create, many of which are largely invisible in nature, are argued to be capable of enabling and/or or suppressing the development of graduate attributes.*

It is therefore proposed that a narrowing of focus onto the specific factors of a postulated model of graduate attribute development requiring investigation to identify, interpret and re-describe the proposed components of the model, believed to be factors that relate to: 1) the individual student; 2) the educator; 3) the learning environment; and 4) student-student relationships, whilst recognising that these components do not appear to work in isolation.

The next chapter will analyse, interpret and re-describe these four components of the model postulated in this chapter, seeking to find support in the literature for their inclusion. To the extent that such support is found, a series of postulates related to each component will be developed for empirical scrutiny.



## **Component Identification and Theoretical Synthesis**

## Chapter 3: Component Identification and Theoretical Synthesis

### 3.0 INTRODUCTION

The aims of this chapter are twofold: first, to identify, interpret and redescribe the components of the model tentatively described in Chapter 2; second, various theoretical frameworks and/or interpretations are used to provide insights into the proposed model of *graduate attribute development*. The initial starting point of this chapter will be on the identification of components of the proposed model of graduate attribute development being: 1) student-based factors; 2) educator-based factors; 3) the learning environment-based factors (as the operationalisation of the educator's intentions; and 4) student-student based factors. It is important to note that these disparate components or factors do not operate in isolation

During the discussion, it will become evident of the important and complex inter-relationship between these factors and the need to identify what combination of these factors may enable graduate attribute development. Through this discussion several postulates will be developed for the purpose of identifying specific areas of empirical investigation that are aligned to the proposed presence of graduate attribute skills development.

The chapter concludes with an explanatory note regarding the nature of the theories drawn upon throughout this chapter, the aim being to reconnect the development of postulates to the ongoing invitation of researchers to add to an understanding of a conceptual framework for developing graduate attributes in

higher education (Barrie 2004, 2006, 2007; Green, Hammer & Star 2009; Hager & Holland 2007; Bath, Smith, Stein & Swann 2004; Treleaven & Voola 2008).

As a critical realist researcher I have an opportunity to evaluate what is of value from the previous body of work on the chosen topic. As noted by (Edgley, Stickley, Timmons & Meal, 2016) that as an approach critical realism can and does produce original conceptual developments beyond what may be expected in a traditional literature or systematic review. By bringing a range of literature or a novel theory to bear on the issue of graduate attribute development, the critical realist review can be said to become a primary source because it unpacks concepts and builds theory. As a researcher I will need to be able to let go of more traditional, fixed structures for conducting research and the presentation *will not need to* adhere to the more traditional background, method, results, discussion and conclusion format (Edgley et al. 2016). So at times in this chapter my voice as a researcher recedes to achieve the intentions of this chapter to facilitate a descriptive and analytical focus on the literature on the literature and then postulate development.

### **3.1 POSTULATE DEVELOPMENT**

In line with the requirements of theoretical redescription (Danermark et al. 2002), this chapter will briefly engage with various literature deemed to be relevant to the four components presented in figure 3.1. It is important to note that this chapter does *not* equate to a traditional literature review, it merely seeks to redescribe the components and, where possible, apply contrasting theoretical frameworks and/or interpretations that may provide new insights through engaging with the extant

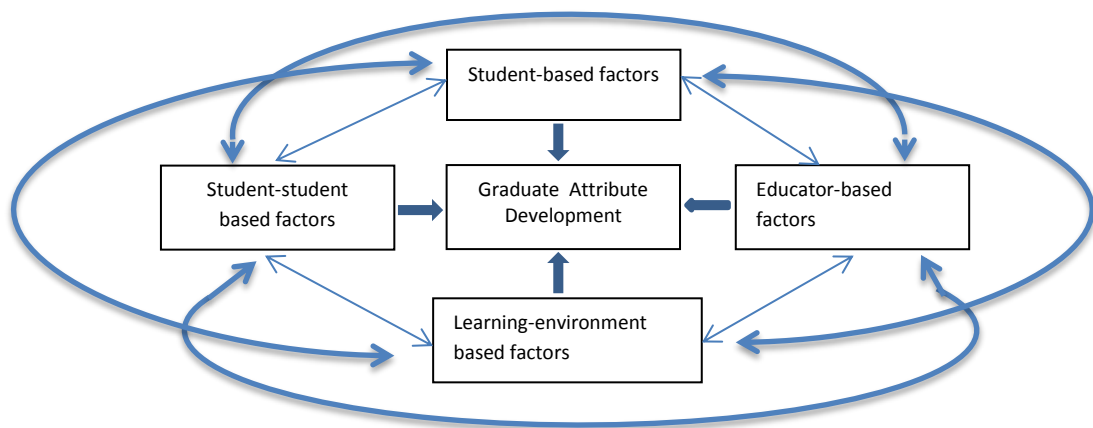
literature. Therefore, the chapter aims to provide insights into the possible transfactual conditions that could relate to the suggested model of *graduate attribute development*. These transfactual conditions refer to ‘the more or less universal preconditions for an object to be what it is’ (Danermark 2002, p. 77). Such comments build on Bhaskar’s (1978, p. 227) view that scientifically significant generality does not lie on the face of the world, but in the hidden essence of things. Also, given the fact that the events under investigation (i.e., development of graduate attributes) have already occurred, an outcomes-based explanation (see Mahoney 2003) provides a logical approach to learning about the possible presence of generative mechanisms and their transfactual conditions.

This chapter aims to allow the reader to contemplate the nature of the transfactual conditions that could relate to the proposed model of graduate attribute development. Therefore, the theoretical support or otherwise for the identified components of the postulated model of graduate attribute development is considered. It has already been established in Chapters 1 and 2 that there is a paucity of literature that considers what these factors may be and how they may interact.

Following on from the meanderings of the researcher in the previous chapter, by way of a tentative engagement with the literature, personal reflections of experience as a facilitator and educator, discussions with colleagues and former students, and observations of educators and students in various learning environments, it is proposed that a narrowing of focus onto the specific

components of a model of probable graduate attribute development be undertaken. Along the way, several postulates will be developed for the purpose of identifying specific areas of empirical investigation to confirm/disconfirm the presence and justification of the components assumed to be present for graduate attribute development. The proposed components are shown in Figure 3.1.

**FIGURE 3.1: THE PROPOSED COMPONENTS OF THE MODEL OF GRADUATE ATTRIBUTE DEVELOPMENT**



This chapter concludes with an evaluation and synthesis of the literature reviewed and the next iteration of the *research proposition* being investigated through the related postulates developed in the chapter.

### **3.2 STUDENT-BASED FACTORS**

Identification of components of the model commences with student-based factors that may have the potential to support a student's graduate attribute development. Four key components that relate to student-based factors have been identified.

#### ***3.3.1 Altered habits of thought through self-reflection***

Reflection is widely recognised as a central tenet of the teaching and learning process and through an increased level of self-awareness from reflection; students may change their habits of thought. (Harford & MacRuaire 2008; Brookfield 1995, 2005; Zeichner & Liston 1987). It is argued in this research that a change in student's habit of thought, through continuous reflection may enable them to engage in more effective communication, problem-solving and social responsibility strategies.

The development of the discourse on reflective practice centres much on Dewey and Schön, both of whom advocated that learning was contingent upon the integration of experience with reflection and of theory with practice (Humphreys & Susak 2000). Dewey (1933) spoke of the importance of students being actively and deliberately engaged with problematic situations, underpinned by students' awareness of their own attitudes and ideas (Harford & MacRuaire 2008).

Furthermore, Brookfield (1995) said of the autobiographical lens, if students focus on their previous or current learning experiences they may 'become aware of the paradigmatic assumptions and instinctive reasonings that frame how they work (Brookfield 1995, p. 30). As noted in one study, 'as students shared their reflections, they begin to appreciate the variety of individual perceptions held by classmates' (Pierce & Kalkman 2003, p. 129). Another perspective comes from Archer who describes reflection as 'the regular exercise of mental ability, shared by all normal people, to consider themselves in relation to their (social) contexts and vice versa' (2007, p. 4).

The importance of reflection, and its potential impact on altering students' habits of thought, is noted in other research. In order for altered students' habits of thought to occur, that is for students to think, feel and act differently, students' own contributions shaped by reflection need to be stimulated (Kahn 2014). Students need to 'interrogate' the feelings that arise through their learning experiences to bring about altered habits of thought. Interrogation could occur by students asking other students questions on their values (co-reflexivity) in relation to a learning task.

It appears that any reflection involves more than simply participating in some practice, but is accompanied by a range of feelings around those practices as a student attempts to make sense of a learning experience (Harper & Quaye 2009, cited in Kahn 2014, p. 1006).

Research also emphasises the active process of reflection that can reveal aspects of students' thoughts, feelings, perceptions and behaviours. For example, the extent to which effective communication skills are demonstrated in group learning, may inform the student and the educator that adjustment or strengthening is needed to improve future interactions and hence enable graduate attribute development (Kahn 2014).

Schön has distinguished reflection as reflection-in-action and reflection-on-action (1983). He suggests that each form of reflection can trigger a change in habits of thought. Reflection-in-action helps students complete a task. It is that process that allows a student to reshape what they are working on, while they are working on it. It is this ongoing experimentation that can help a student find a viable solution. In this form of reflection, the 'trial-and-error' method is not employed. Rather, actions are much more reasoned and purposeful than that. If something isn't working correctly (doesn't seem right, doesn't seem to move you closer to the goal), then 'you reflect' (a conscious activity), in the action-present (Schön 1983).

Schön then suggests a second form of reflection, reflection-on-action. This is about thinking back on what has been done 'in order to discover how our knowing-in-action may have contributed to an unexpected outcome' (Schön 1983, p. 26). While Schön and others tend to use the terms 'reflection' and 'reflexivity' interchangeably, Darling (1998, p. 4) uses the time at which introspection occurs to distinguish between the two, reflection occurs after an interaction whereas reflexivity incorporates introspection within the period of interaction. Darling (1998, pp. 3–4)



further elaborates that reflection is related to self and improving future practice, whereas reflexivity is a proactive tool to simultaneously improve communication and provide insight into priorities prior to reaction.

The concept of the time when reflection occurs arises again in other literature. Critical to the development of reflection is that it is a 'complex, rigorous, intellectual and emotional enterprise that takes time to do well' (Rodgers 2002, cited in Ryan & Ryan 2013, p. 245). The implication for educators and students for altering students' habits of thought is that reflection requires time and practice for development (Bain, Ballantyne, Mills & Nestor 2002).

Of further interest is the key role reflection can play in shaping the activities that students choose to undertake and the way they are distinctively progressed (Archer 2007). Archer suggests that through varied modes of reflexive deliberation, perhaps journal writing after engaging in a debate, students prioritise their concerns for learning and embark upon specific courses of action (Archer 2007). Reflection is also reported as being further influenced by the tasks and social relations encountered by students in a learning environment, as these can act as a way of regulating student learning (Haggis 2009).

It is therefore argued that to change students' habits of thought and support the development of graduate attributes, various opportunities to engage in examining and reflecting upon beliefs, philosophies and practices are important both during and after a learning experience (Mezirow 2006; Moon 2006).

However, in providing opportunities for self-reflection, and time for these skills to be developed, educators need to be conscious of a level of vulnerability that may be experienced, as students may try to 'protect the "sensitive frontiers"' (Bolton 2001) between personal and professional life' (Hilsdon 2006, p. 68). If educators wish to bring about change in students' habits of thought, they need to consider how to ameliorate any student concerns about the extent to which they are prepared to open up to 'scrutiny' by educators through reflexive opportunities.

Furthermore, as learning inherently involves progressing activities or tasks in unfamiliar contexts, this can lead to student anxiety and may impact on the extent of reflection and human flourishing which often involves 'living effectively amid uncertainty' (Barnett 2004, p. 257, cited in Kahn 2014). Anxiety and experiences of alienation can also arise from uncertainty which can play a role in learning (Jarvis 2012). Such factors as the novelty of the context, the presence of incongruities, or the range of possible ways forward, are all related to the challenges entailed in learning and confirm the need for student reflection in order to change students' habits of thought (Kahn 2014).

It could be argued that educators could easily 'abstract' rules for reflection or co-reflexivity, but research suggests there may be practical and theoretical issues with this. On the practical side, students who are confident in one set of practices may well be novices in another, so for reflection to be embraced students may need to have desired 'outcomes' modelled by educators. In the context of this research, educators modelling communication and problem-solving skills and demonstrating

social responsibility practices may increase students' confidence to use reflexivity as a means of evaluation and encourage willingness to 'try out' alternative habits of thought leading to a possible change in behaviour. So it would seem that educators need to share their personal and professional experiences with students in a setting where they (the educator) are equally novices as students in reflecting on experiences and coming to reflexive conclusions (Jolly & Radcliffe 2001).

A theoretical issue with having abstract rules for reflection relates to assumptions. One of the basic tenets of reflective practice is that students must learn to identify and question presuppositions (or starting assumptions). However, part of what educators do is to 'socialise' our students to the norms of the discipline. Research has found this matter of learning and practising, what could be called 'hegemonic behaviours' (for example, encouraging students to adopt specific behaviours) to be particularly salient in some disciplines, but suspect it is significant in all disciplines (Jolly & Radcliffe 2001).

The research on the value of reflection to the learning process is strong. However, if the goal of students engaging in reflection is to learn from the experience with the intention of improving the quality of future interactions, then educators need to provide the conditions for reflection. There is an important message for both educators and students in the work of Brown who says students and educators are causal agents in that their values, beliefs and reasons are causes of their behaviours (2008). It could be argued that perhaps the extent of the value of reflection and how it is harnessed, as a condition to support students' altered habits of thought,

depends on both educator and student factors. For example, educators model the expected outcomes (such as how to build consensus through problem-solving), and students are prepared to be vulnerable and challenge their habits of thought. Banský perhaps captures the challenge for educators in providing students with conditions when he suggests ‘a lot of people never use their initiative because no-one told them to’ (Banský 2006, p. 21).

It would therefore seem that providing sufficient opportunities and time for reflection are critical to building a student’s ability to reflect. With time can come an increase in students’ self-confidence and development of a meaningful educator-student relationship. As noted by Benner (1984), the progression to becoming competent in reflection starts from a position of depending wholly on ‘rules’ until finally, through experience, the rules become unconscious—though remaining the basis of reflective practice. Butler also suggests that higher orders of reflection (the competence and proficiency that the world demands), are arrived at only after substantial practice. This reflection allows the practitioner to gain as much from experience as they do from received wisdom (Jolly & Radcliffe 2001).

In summary the path to student reflection needs to start with regular opportunities for practice, moving from novice to expert with educators using their reflection of practice, in partnership with students, to move towards a reflexive stance with respect to current and future learning interactions (Jolly & Radcliffe 2001). Reflexivity can therefore be seen as the application of the fruits of reflection, and a higher order skill important to facilitating changing habits of thought (Jolly 1999).

Finally, from the examination of the literature, the first postulate emerges which can be subject to empirical scrutiny to confirm/disconfirm the importance of reflection and co-reflection (hereon termed as reflexivity) to facilitate altering of a student's habits of thought as a justified student-based factor and component of graduate attribute development.

**Postulate 1:**

A student's habit of thought is capable of being altered through frequent and varied opportunities for reflexivity.

***3.2.2 Students' approaches and strategies for learning***

It is well known that positive learning experiences in higher education are related to deep learning approaches (Prosser & Trigwell 1997; Ramsden 1992), deep approaches to learning being a foundation for lifelong learning and graduate attribute development (Baeten, Dochy & Struyven 2008). Others postulate that learning opportunities considered by students as action learning, support the development of a deep approach to learning producing a positive effect on student learning (Stappenbelt 2010; Male, Bush, & Chapman 2010).

However, many students enter university with naive epistemological beliefs and study approaches incompatible with the goals of higher education (Leung & Kember 2013). These beliefs can impact on a student's approach to learning. A student's personal epistemological belief relates closely to beliefs they have about learning (their chosen approach), and so beliefs can influence the chances of students adapting to higher education [... during their first year of study] (Brownlee, Walker, Lennox, Exley & Pearce 2009). The adoption of a learning approach and strategy is

therefore a function of a student's perceptions of the learning environment, and potentially the way a student undertakes assessment tasks and/or the student's motivation for a learning task (Kember 2008; Kember, Leung & Ma 2007).

It is important here to clearly differentiate between deep and surface approaches to learning. A 'deep' approach is about striving for improved understanding by applying or comparing ideas. On the other hand, 'surface' learning involves reproductive strategies that offer little attempt to integrate information (Thomas & Bain 1984, cited in Lizzio et al. 2002).

Deep and surface learning can be considered in terms of the Structure of Observed Learning Outcomes (SOLO) taxonomy of educational objectives (Biggs & Collis 1982). According to Biggs and Collis, deep learning requires higher order cognitive thinking skills such as synthesis. For example, students are required to integrate components into a new whole, such as 'what is the relationship between x and y?' Surface learning, on the other hand, consists mainly of comprehension and reproducing knowledge (rote learning) which is often forgotten by students shortly after the learning experience has ended. It has been consistently reported that surface approaches generally lead to low retention and an inability to use information in new contexts (Biggs 1999; Prosser & Trigwell 1999; Ramsden 1992). However, of note is evidence that a student who takes a deep approach in one unit, or even part of a unit, may take a surface approach in relation to something else (Biggs 1999; Prosser & Trigwell 1999; Ramsden 1992).

Also of interest is research that points to an educator's ability to influence a student's approach to learning by the way of unit design. Inquiring into the approaches and learning strategies that students adopt, and the reasons they give for taking these approaches, can be a valuable way of informing changes to pedagogical approaches that may increase the potential for graduate attribute development (Biggs 1999; Prosser & Trigwell 1999; Ramsden 1992).

Some researchers have explored the relationship between approaches to learning and a number of variables in the teaching and learning context. Svensson discovered that students using a deep approach studied for much longer and tended to perform better than those adopting a surface approach (as cited in Matshishi & Rabin 1999). Also students who adopt a deep approach to learning tend to be intrinsically motivated while students adopting a surface approach show extrinsic forms of motivation, often prompted by the fear of failure and the need to satisfy assessment requirements (Matshishi & Rabin 1999). Other research by Eley (1992) found students reported more surface approaches to learning when units of study emphasised formal achievements, and reported more deep approaches when units were perceived as high on supportive teaching, independent learning and clear structure.

Several variables have been identified which can also influence the student's learning approaches such as workload, the nature of assessment tasks, teaching style, staff/student ratios, the structure of the course and lectures, enthusiasm of educators and tutors, generation of a personal learning context and provision of

feedback (Gow et al. and Sharma cited in Hall, Ramsay & Raven, 2002). Also of interest are Kember and Leung's (1998) findings of a positive and reciprocal relationship between a surface approach and perceived heavy workload; that is, not only do student perceptions affect an approach to study, but approaches also affect perceptions (of a unit, educator or learning experience).

With this knowledge it seems fair to suggest that educators need to know more about the type of learning and assessment tasks that might be most conducive to fostering deep approaches to learning, how they might best be sequenced, and when they can most effectively be offered to students (Hofer 2001). Hofer (2001) suggests educators examine the learning activities that promote the development of reflexivity as discussed in 3.2.1.

In summary, in order to develop deep learning approaches and strategies in students, an understanding of the 'psychological makeup' of the student cohort is necessary before learning and assessment activities can be developed. This includes developing an understanding of learning approaches students tend to adopt and identifying activities that may promote higher order thinking skills. Research highlights opportunities for educators to positively influence student approaches to learning by employing pedagogical approaches that are student-considered and foster deep learning.

From the examination of the literature, a second postulate emerges which can be subject to empirical scrutiny to confirm/disconfirm the importance of a deep



approach and strategy for learning as a justified student-based factor and component of graduate attribute development.

**Postulate 2:**

A student's deep approach and strategy to learning may enable graduate attribute development under certain conditions.

**3.2.3 *The Reasonable Adventurer attributes***

*The Reasonable Adventurer attributes* is one personality framework through which a student's ability to create opportunities for satisfaction can be enhanced. Heath (1964) identified six specific attributes seen as the scaffolding for skill development for students to deal with ambiguity and change, and fundamental to the development of graduate attribute (Jones 2007, p. 231). According to Heath, a student with these attributes possesses reasonable expectations, 'he seems to have his psychological house sufficiently in order to release him to attack the problems of everyday life with zest and originality' (1964, p. 30).

The principal characteristic of a student demonstrating *The Reasonable Adventurer* attributes is the ability to create opportunities for personal satisfaction which Heath sees as a combination of two traits: a flair for change and 'world relatedness' (1964). Of Heath's six attributes of *The Reasonable Adventurer*, the first attribute is intellectuality or an ability to remain curious whilst determining what matters, through making connections between the object under consideration and the reality of the student's world. In the pursuit of a problem, a student demonstrating this attribute seems to experience an alternation of involvement and 'detachment'

(1964, p.31). What Heath is describing here is an intensive period characterised by curiosity as the student moves towards a perceived new understanding or relationship. What follows this involvement and strong sense of curiosity, is a greater awareness of 'self' or personal identity where the student spends time critically reflecting on the meaning of what was discovered (Heath 1964). Heath suggests that these two mental attitudes (the curious and the reflective) occur in alternation, the curious and the critical (1964, p. 31).

Heath speaks of another form of intellectual adventure, that of close friendships the second attribute. This attribute has phases of involvement and detachment. The beginning of a friendship is often marked by the experience of discovering another's individuality. It is suggested that elements of intensity and excitement are also present in this phase of intellectual discovery (Heath 1964). As students share their feelings, beliefs and ideas, this can release each student for a period of further reflection and detachment. From the process of reflection close friendships may be formed if the communication of deep feeling occurs. In other words, both students experience the same feeling from their respective experiences (Heath 1964; Chickering & Reisser 1993). Recognition of shared feeling also seems to pave the way for another outcome in the formation of a close friendship, that is, a new 'perception' emerges. This means a new way of looking at one's self, a student's relationships, or the world in general. Other benefits flow from the establishment of a close friendship in higher education. Heath argues that close friendships are a common precursor to an 'intellectual awakening' (Heath 1964, p. 33) which may

lead to an enlivened interest in academic work (Tinto 1997; Hallinan & Williams 1990; Ramsden 1992; Wenger 2006).

The third attribute associated with being a *Reasonable Adventurer* is relative independence in the area of values, or the ability of students to rely upon personal experience rather than external authorities, such as the educator, to form value judgements. Where a student's own experience is lacking, he/she may suspend judgement and pursue the role of interrogator by asking self, peers and the educator questions to aid the process of forming value judgements. According to Heath (1964) an increased reliance on one's judgement, provides an opportunity for rigorous reflexivity, an important element in student development and self-satisfaction.

Heath (1964) identifies his fourth Reasonable Adventurer attribute as a tolerance for ambiguity or being able to see life as a series of interruptions and recoveries. A situation is likely to be perceived as ambiguous when it is uncertain, changing or unstable, or when it confronts the student with new and unfamiliar problems that cannot adequately be structured or categorised. Norton (1975) defines *intolerance* for ambiguity, as 'a tendency to perceive or interpret information marked by vague, incomplete, fragmented, unstructured, unclear meanings as actual or potential sources of discomfort or threat' (Norton 1975, pp. 608–609). So a tolerance for ambiguity relates to the information students receive from or about situations they encounter and the ability to manage the challenge of the unexpected, uncertain and the unclear (Hartmann 2005, p. 245).

So how can a tolerance for ambiguity impact on the learning experience? Students with high tolerance for ambiguity seek out and enjoy ambiguity, and excel in the performance of ambiguous tasks (Norton 1975, p. 618). Others suggest that how a student copes psychologically with ambiguous information affects the perception, interpretation and weighting of cognitions. This is because 'a person's degree of ambiguity tolerance interacts in any situation where there is too little, too much, or seemingly contradictory information (Steenkamp & Wessels 2014, p. 276). As Heath suggests, a student who tolerates ambiguity enjoys encounters with the unknown, 'perhaps he displays less compulsion to reduce all unknowns before one acts' (Heath 1964, p. 34).

The fifth Reasonable Adventurer attribute is the breadth of interest that is demonstrated by a student. What separates students with this attribute from other students is the uncommon interest in the commonplace (Heath 1964). So depth replaces breadth to enable what Heath termed 'a sustained pursuit of a specific problem' (Heath 1964, p. 34). For students to demonstrate this attribute it is the experience that rewards students ultimately; one that is often foreign to students who 'cram' for examinations at the end of the semester and depend heavily on rote memory (Heath 1964). Heath's thoughts on this attribute are well captured when he states 'the Reasonable Adventurer has a deep understanding of many areas of knowledge not necessarily because he is more intelligent, but because he has been there' (Heath 1964, p. 35).

The last Reasonable Adventurer attribute is a balanced sense of humour, making the student good company yet also being capable of showing sensitivity towards others even during conflict. Heath suggests that a Reasonable Adventurer's sense of humour comes from a 'fluidity of mind' (1964, p. 35) that permits the students to shift perspectives quickly depending on the situation he or she is confronted with. It is argued this 'manoeuvrability', along with deeper learning experiences, may lead the student to see beyond the common view, which may enhance the possibilities for humour (Heath 1964) important to building partnerships in the learning environment.

In summing up his description of the Reasonable Adventurer, Heath suggests that not all students 'capable' of demonstrating the Reasonable Adventurer attributes will behave in the same way because as a student develops 'the more finely sketched is his individuality' (1964, p. 38). Heath promotes the notion of a graduate student who is capable of using his or her own individuality in ways that are beyond any pre-existing mental talents, who therefore is able to deal with the complexities of modern society and find a pathway leading to satisfaction (Jones 2007). Jones notes that although students may be 'tied to the reality of their own world', they are capable of finding deep satisfaction from 'the basic ingredients of their "raw" life if they are provided opportunities to do so' (2007, p. 230).

It is proposed that the six key attributes identified by Heath are seen as essential outcomes for any graduate destined for employment and are important to unleashing student potential for graduate attribute development. *The Reasonable*

*Adventurer* attributes therefore emerge as the third postulate which can be subject to empirical scrutiny to confirm/disconfirm their importance as a student-based factor and justified as a component of graduate attribute development.

**Postulate 3:**

A student's likelihood of demonstrating graduate attributes can be explained by the presence of '*The Reasonable Adventurer*' attributes.

**3.2.4 Psychological safety to foster adaptability**

For students to adapt to new learning experiences they require a learning space that encourages the expression of differences but offers psychological safety to support them facing these differences. It is about creating and holding a learning space that offers a climate of support that students can trust to 'hold' over time, a space that respects the norms of psychological safety, with serious purpose and respect to promote learning (Kolb & Kolb 2005, p. 207).

Creating and holding a safe space for learning requires educators and students to embrace and face differences. These may be differences between skills (such as an expert's performance versus novice status) or differences between deeply held beliefs and beliefs about new ideas, or differences in life experiences. Embracing such differences by exploring the values of others may lead to a better understanding of them, facilitate learning (Kolb & Kolb 2005) and build capability.

The work of Beard is noteworthy in a discussion on developing psychological safety. He states that learning is enhanced when students discover things for themselves through their own emotional engagement in a psychologically safe environment

(2006). This requires student commitment to discovery, experimentation and reviewing of personal goals and visions. However, in order for any experiences to be interpreted in a constructive manner, it is essential that students have confidence in the validity of the views of others, and be able to incorporate them with their own views and values where necessary (Beard & Wilson 2006).

Bryk and Schneider and others note that relational trust is another factor that can impact on the degree of psychological safety experienced by students and the extent to which they can adapt to new learning experiences (2002, 2003; Malloy 1998). Although relational trust does not appear to *directly* affect student learning, there is evidence that higher levels of relational trust support the conditions in which student learning and outcomes such as graduate attribute development are more likely to occur (Bryk & Schneider 2002, 2003).

In furthering an understanding of relational trust and its role in creating psychological safety, it is proposed that three entities (students, educators and the learning environment they co-create) interact in ways that result in the continuous alteration of each entity over time. It is the central presence of relational trust that is argued to be at the heart of the interaction occurring between these three entities that can influence the degree of psychological safety and a student's adaptability or openness to new experiences (Bryk & Schneider 2002).

A number of factors underpin each entity's ability to develop relational trust and build a psychologically safe environment important for graduate attribute

development. There is an interrelated set of mutual dependencies embedded within social exchanges, and regardless of how much formal power exists, all parties are dependent on others to achieve desired outcomes and, importantly feel empowered by their efforts. As students and educators interact with one another they are constantly discerning the intentions embedded in the actions of others (Bryk & Schneider 2003). Students for example may consider how others' efforts advance their own interests or impinge on their own self-esteem and confidence, necessary ingredients for psychological safety. In the absence of prior contact, students and educators may rely on the commonalities of race, gender, age, religion, or socio-economic status as trust determinants (Bryk & Schneider 2003). These discernments tend to be organised around four specific considerations: respect, personal regard, competence in core role responsibilities, and personal integrity (Bryk & Schneider 2003).

It is therefore useful to explore the importance of these considerations in creating a learning environment that is psychologically safe for students. Firstly, relational trust is grounded in the social respect that emerges from social discourse that takes place in the learning environment. Respectful exchanges are marked by genuinely listening and by taking others views into account in subsequent actions. Even when students or educators disagree, students still feel valued if others respect their opinions (Bryk & Schneider 2003). The significance of respect is also noted in 3.2.3 as a quality embedded in several of *The Reasonable Adventurer* attributes.



Personal regard represents another important criterion in determining how entities discern trust and psychological safety. Such regard comes from the preparedness of students and educators to extend themselves beyond the role expectations perceived as key to learning and development, to cultivate a climate in which there is a willingness to share experiences, values and beliefs and where humour is used in a benign way and vulnerability accepted (see 3.2). Such new relationships between educators and students are discussed in the context of learning partnership in 3.3.1 and 3.3.2. Perceptions about personal integrity also shape a student's discernment that trust exists. Integrity also demands that a moral-ethical perspective guides behaviour.

In summary, for students to fully engage in learning activities and be willing to adapt to new learning experiences a relationship or sense of belonging is important (Hart 2004). This means that educators need to create a learning environment that is perceived by students as psychologically safe, where varying perspectives are explored and a high degree of trust encourages students to learn through self-discovery.

From the above examination of the literature, a fourth postulate emerges, which can be subject to empirical scrutiny to confirm/disconfirm the importance of ensuring psychological safety to foster adaptability. This is the final identified student-based factor to be subject to scrutiny to justify it as a component of graduate attribute development.

**Postulate 4:**

A student's adaptability is influenced by the degree of psychological safety in the learning environment.

These first four postulates relate to the assumed transfactual conditions that are assumed to exist for a student to contribute to the model of graduate attribute development.

**3.3 EDUCATOR-BASED FACTORS**

Identification of components of the model continues with consideration of educator-based factors which may act as mechanisms with the capacity to enable students' development of graduate attributes. Two key components that relate to educator-based factors have been identified.

**3.3.1. *The educator's philosophy***

It is argued that an educator's way of being infuses or pervades the learning environment (Morrison-Saunders 2013) and that 'conceptions of teaching influence teaching approaches impacting on students' approaches to learning, and in turn affecting learning outcomes' (Kember 2009, p. 2). So it could be said that being an 'effective' educator requires bringing a scholarly approach to the ongoing development of professional skills and practice and high levels of disciplinary and 'other contextual expertise' (Devlin & Samarawickrema 2010, p. 111).

When considering conceptions of teaching, a comprehensive literature review on an educator's philosophy of teaching reveals it as, a 'systematic and critical rationale that focuses on the important components defining effective teaching and learning

in a particular discipline and/or institutional context' (Schönwetter, Sokal, Friesen & Taylor 2002, p. 84). Skelton adds to this description of a teaching philosophy by emphasising the importance of an educator's values and personal identity fitting the environment (2009, p. 109). Context plays a key role in shaping and sustaining educator beliefs and practices in that an ongoing focus on teaching strategies and tools for practice often means that context, ideology and values are not discussed (Fitzmaurice, 2010, p. 53).

It would therefore seem that in developing an educator's philosophy that is student-considered, examination of values and beliefs as well as the notions of 'espoused theory' and 'theory-in-use' are important (Argyris et al. 1985). The notion of espoused theory encompasses the world view and values upon which educators believe their behaviour to be based. Theory-in-use is the set of values that underpins action and determines behaviour: it is the set of values suggested by the maps educators use to take action in determining pedagogical approaches employed (Argyris & Schön 1974).

However, there can be incongruity between espoused theory and theory-in-use which may impact on pedagogical approaches chosen by the educator. This incongruence can be compounded as theories-in-use are predominantly tacit knowledge, and this knowledge can be difficult to articulate (Virtanen 2013). Furthermore, educators may not be aware that the maps used to take action may not be formulated from their espoused theories (Argyris & Schön 1974).

Incongruence in how an educator's values are applied may arise for other reasons aside from differences between espoused theory and theory-in-use. There may be pragmatic issues such as resource constraints within a Faculty, large classes and heavy workloads, resistance on the part of students to ambiguity and change and self-defence on the part of the educator which may all create incongruence (Argyris & Schön 1974; Bath et al. 2004; Jones 2009). As Bath et al. (2004) note, self-defence may occur as some educators perceive graduate attributes as something that should not be their concern or responsibility. To this Edwards and King (2002) note graduate attributes are often seen as a competitor to content which may impact on the educator's chosen pedagogical approaches.

Incongruence between an educator's espoused theory and theory-in-use can occur as educators may profess the value of particular graduate attributes, but how these attributes are reflected in a learning environment may be different. So while certain beliefs may be central to an educator's values, they may not necessarily be directly enacted in pedagogical approaches, creating a tension between what is valued and what is practised in pedagogical terms (Jones 2009). Jones found (2009) that while attributes are valued by educators and seen as part of the structure of their discipline, they are often not explicit in teaching. In other words, educators may not be considering how and to what extent graduate attributes, such as communication skills, are integrated into the learning experience.

In light of the research, and if educators are to create a learning environment that facilitates the development of graduate attributes, they perhaps need to make

explicit their espoused theories and theories-in-use and discover any inconsistencies between the two. Opportunities for educators to surface what they 'say they do and their explanations for their actions' and 'what they actually do and the real reasons for their actions' may contribute to developing a robust teaching philosophy that has a student-considered focus (Robinson & Lai 2005, p. 99).

As discussed in Chapter 1 and in 3.3.1 student-considered learning is a pragmatic term tethered to and consistent with Dewey's philosophy about the importance of experience and the student's role in learning from experience (1998). It is therefore important to consider further what is being "student-considered" in the context of an educator's philosophy that may contribute to graduate attribute development.

McCabe and O'Connor (2014) report on a study where educators describe student-considered learning as a relationship with students premised on an understanding that:

'You have to let go, stand back and given them ownership ... guide them without directing them ... without giving them the answer [and] phrase the questions [so they] realise that the direction they are going is not the right direction' (p. 353).

Another consideration when discussing what constitutes a student-considered learning environment is how the educator can support students to 'bounce back' and restore their equilibrium, show adaptability and transformability (Folke, Carpenter, Walker, Scheffer, Chapin & Rockstrom 2010). Building such resilience may indeed increase a student's self-confidence (Luthans 2002) and may foster *The Reasonable Adventurer* attributes (discussed in 3.3.3).

Research suggests an important role for educators in offering students freedom. afforded through opportunities to innovate, explore and make mistakes, which is integral to their personal development. Furthermore, Whitehead (1929) says freedom provides the means for students to alter their behaviours via a shift in their habits of thought and freedom may also help students to make decisions about the adoption of new and valuable habits and dispensing of old habits of thought, feeling and way of being (see 3.2.1). This freedom will be of the most value if educators encourage students to react to their environment and to for example, apply novel ideas to problems they encounter, particularly if such problems reflect the dynamic nature of today's world (Jones 2007).

The importance of the notion of freedom in student-considered learning is also noted in the Australian Education Review report of 2010 where it is stated that 'students involved in self-directed learning make mistakes but in a 21st century [school] the mistakes are considered a natural and valuable element in learning' (Moyle 2010, p. iv). It would appear that when there is freedom in the learning environment, students may interact in such a way as to assist in the development of independent action and new skills. Adding to the idea that freedom to innovate and make mistakes is a valuable learning experience, research on the influences of the contexts within which learning takes place, shows that a deep approach to learning (as discussed in 3.2.2), is related to what students perceive as 'freedom in learning', which is explained as some choice in what and how to learn (Entwistle, McCune & Hounsell 2002).

In formulating an educator's philosophy of teaching, the use of an evolutionary approach may provide a useful way of considering how interaction occurs between the student and the learning environment, whilst at the same time being mindful of identifying any specific causal factors that may impact on the learning process (Jones, 2007). Jones neatly explains that when an evolutionary process is at play when students are given opportunities to make an intelligent choice, determining which 'profitable' experiences should be retained and which 'unprofitable' experiences dispensed with (Jones 2007, p. 235).

Other literature speaks of risk and uncertainty in learning and to the significance of freedom for students to make mistakes in a 'controlled environment', described as a learning space conducive to structured yet relaxed interaction (McCabe & O'Connor 2014, p. 353). Barnett claims (2008, cited in Blackie, Case & Jawitz 2010) that uncertainty and risk are inevitable aspects of being a student and that these elements need purposeful consideration by educators in their philosophy. Tangey (2014) speaks of educators creating supportive student-considered learning environments and having 'a real commitment to find pathways for all students to excel and to provide opportunities for students to overcome setbacks in a dignified way' (2014, p. 272).

The literature identifies a number of considerations for developing a student-considered teaching philosophy and for some educators a pedagogical shift which poses some rewards and challenges. (Attard et al. 2010; Elen, Clarebout, Leonard & Lowyck, 2007; Walsh 2005). For some educators, establishing a student-considered

learning environment represents an opportunity to redress a student mind-set that is sometimes considered 'conditioned to success through mimicking and regurgitating [but] ... are they conditioned to think for themselves?' (McCabe & O'Connor 2014, p. 353). However, a lack of educator readiness, incongruence between espoused theory and theory-in-use, an unclear educator philosophy and a lack of confidence may be significant challenges in implementing a student-considered approach to increase a student's potential for graduate attribute development (Kember 2009; McCabe & O'Connor 2014).

Clearly there are a number of imperatives that underpin developing an educator's philosophy. From the examination of the literature, a fifth postulate and the first educator-based factor emerges which can be subject to empirical scrutiny to confirm/disconfirm the importance of the educator's philosophy as a justified factor and component of graduate attribute development.

**Postulate 5:**

An educator's philosophy that offers freedom for students to innovate, make mistakes and recover may support graduate attribute development.

**3.3.2 *Managing student differences in the pedagogical space***

As discussed in Chapter 1, pedagogical approaches are being influenced in higher education by issues such as rising global student numbers and increasingly diverse student backgrounds (in educational, cultural, social and practical terms) (NUS 2012; Ramsden 2008; Universities UK 2012a). New technologies continue to proliferate extending the ways in which knowledge and learning are shaped, accessed and managed. As participation in higher education expands, these diverse



pathways and student cohorts are extending the potential and pressure for educators to address student differences in the pedagogical space (NUS 2012; Universities UK 2012a).

Pedagogical space can be defined as ‘the spaces, norms and pedagogical scaffolds that emerge around shared [teaching] practices’ (Brown 2004, pp.1–2). Others view pedagogical space as linking pedagogical activities to spatial settings or the process of educators considering learning activities in terms of space, time and interconnections (Ryan & Tilbury 2013). It is proposed that pedagogical spaces are capable of motivating students and promoting learning as an activity, and are capable of supporting collaboration as well as formal practice, providing a personalised, flexible and inclusive environment in the face of changing student needs (Ryan & Tilbury 2013). It is also contended that the layout or design of the pedagogical space imposes a style of pedagogy on the educator and that the educator’s philosophy may dictate how learning environments are adapted to facilitate learning and enable graduate attribute development (Jamieson et al. 2007; Pretto 2011).

Consequently, not only do educators need to provide a pedagogical space to support the diversity of students, but individual differences need to be identified so appropriate use of this ‘space’ can be employed. Individual differences are cited as contributory factors in student development (Cassidy 2012), and in the context of learning, refer to the array of personal characteristics, attributes, aptitudes, preferences and propensities present in a student. Individual differences also

include social factors, such as first generation higher education students, that have the potential to influence the learning experience (Cassidy 2012). Individual differences are considered to play an integral role in learning, with students filtering 'instruction' through a set of individual filters or lenses (Jonassen & Grabowski 1993). The effect of these lenses is argued to assist or prevent the cognitive assimilation of ideas, and an awareness of these individual differences may make educators more sensitive in their role of managing student differences (Jonassen & Grabowski, cited in Cassidy 2012, p. 794).

The increasing diversity of students poses a challenge for educators to support 'non-traditional students' such as the first generation students, in the pedagogical space. Often these students are faced with unlearning past attitudes and behaviours and with learning new attitudes, beliefs, and values that may be quite removed from those of their background (Rendon 1994).

Some interesting research undertaken in the secondary education sector, suggests that educators in 'multicultural' classrooms need to be aware of and interested in student diversity, cultural backgrounds and personal situations and the consequences of these differences for interactions in the pedagogical space. It is perhaps likely that the same degree of attention needs to be given by educators in the higher education sector (van Tartwijk, den Brok, Veldman & Wubbels 2009). This attention may minimise any potential misunderstandings between educators and students with different ethnic and socio-cultural backgrounds (Ting-Toomey 1999). The importance of minimising misunderstandings is supported by

research that suggests students from 'non-traditional' groups may feel inadequately supported. This lack of support may result in high levels of stress, and self-doubt which may play a role in a student's learning within the pedagogical space (Pascarella & Terenzini 2005). However, in noting these challenges, there are opportunities for such students to be 'transformed into powerful learners' through educator support and interpersonal validation (Rendon 1994, p. 37).

Educators can help students build their innate capacity to learn and acquire confidence by identifying what academic and interpersonal experiences serve as validating mechanisms for them (Rendon 1994). Validation in the pedagogical space can be considered as a developmental process rather than an end in itself, with an emphasis on enabling, confirming and supporting students. It is argued that the more students get validated, the richer the academic and interpersonal experience, it is likely that students will gain a sense of trust in their ability to learn (Rendon 1994). Validation could be particularly important for students from diverse cultural and non-traditional backgrounds. When educators validate students this can offer liberation for students to express themselves openly even in the face of uncertainty, and to know 'that the way they construct knowledge is as valid as the way others construct knowledge' (Rendon 1994, p. 47).

Research proposes a number of strategies educators may adopt for student validation within the 'pedagogical space'. These include learning experiences that allow for reflection, multiple perspectives and 'imperfection', and draw upon students' past experiences as a source of strength and knowledge (Rendon 1994, p.

48). Such 'imperfection', as discussed in 3.3.1, suggests that educators need to foster a learning environment where making mistakes is a natural part of the learning process.

The prevalence of self-doubt and stress experienced by some non-traditional and other cultural groups needs consideration by way of building self-efficacy to managing innate student differences. Self-efficacy is defined as 'an individual's confidence in their ability to organise and execute a given course of action to solve a problem or accomplish a task' (Eccles & Wigfield 2002, p. 110). Self-efficacy for learning refers to students' beliefs in their capabilities to regulate their own learning which could determine students' motivation and achievement (Alt 2015). Bandura (1977) refers to self-efficacy for learning as personal judgements of one's competence to successfully execute a course of action to attain a specific goal. It is considered an important psychological construct as self-efficacy beliefs affect student outcomes by enhancing students' persistence and motivation to master challenging tasks that is, to stimulate higher order thinking (Bandura 1993; Pajares & Urdan 2006; Zimmerman et al. 1992). Others note that a belief in one's ability can help to promote learning (Alt 2015; Pascarella & Terenzini 2005). So it is argued that when educators offer different pedagogical approaches with frequent opportunities for reflexivity, self-efficacy may be enhanced, which is important for supporting individual differences within the pedagogical space (Alt 2015).

Aside from recognising the value of building self-efficacy, other research speaks to educators recognising and opening up new pedagogical spaces by capitalising on a student's 'lines of desire', by creating open and semi-open spaces in preference to those metaphorically marked out as paths 'by planners' (Lukin 2010, p. 3). This, however, requires willingness of the educator to address different approaches and strategies for learning, needs and areas of interest, and abilities of the student cohort (McCabe & O'Connor 2014).

In summary, it is reasonable to suggest that educators who spend time identifying student differences, who validate student experiences and offer a student-considered approach to learning in the pedagogical space may increase a student's level of self-efficacy which may act as an enabler graduate attribute development.

From the above examination of the literature, a sixth postulate and an educator-based factor emerges, which can be subject to empirical scrutiny to confirm/disconfirm. The importance of managing student differences within the pedagogical space is a justified component of graduate attribute development in the business discipline within higher education.

### **Postulate 6:**

The use of 'pedagogical space' can assist in managing students' innate differences to support self-efficacy.

The above two postulates relate to the assumed transfactual conditions that are assumed to exist for the educator to contribute to the model of graduate attribute development.

### **3.4 LEARNING-ENVIRONMENT BASED FACTORS**

Identification of components of the model continues with consideration of learning environment-based factors which may have the potential to enable graduate attribute development. Four key components that relate to educator-based factors have been identified.

#### ***3.4.1 Pedagogical approaches and self-directed learning***

As noted in Chapter 2, educational practice is continually subjected to renewal needs (Alt 2015). These changes necessitate a new range of abilities adapted to the emerging requirements of present society, such as diversified social, communication and cooperation skills, and an ability to critically select, acquire and use knowledge (Alt 2015). These types of renewal needs require continual updating of pedagogical approaches that integrate knowledge with transferable skills required for personal and professional life (Alt 2015).

Given the learning environment is described as ‘the set of conditions that enable and constrain learning’ (Brown 2008, p. 20), and its central purpose is the creation and sharing of meaning, it is proposed that establishing learning environments that are self-directed, reflective and relevant to students, are important pedagogical considerations for educators to respond to such renewal needs (Brown 2008; Luca & Oliver 2002; Zimmerman 1990; Carrick Institute for Learning and Teaching 2006). Other research supports this proposition that students need learning environments where they reflect upon what is learned and how it is learned (see 3.3.1), and in

which educators teach students how to teach themselves (Kamenetz 2010, cited in Blaschke 2012).

Writers grounded in humanistic philosophy (such as Knowles 1975, 1978; Merriam 2001; Tough 1971) suggest that self-directed learning should have as its goal the development of students' ability to be self-directed (Merriam 2001). A second goal of self-directed learning is the fostering of transformational learning (Brookfield 1986; Mezirow 1985). Transformational learning, as presented by Mezirow (2000), posits critical reflection by the student as central to the process. This critical reflection is an 'understanding of the historical, cultural and biographical reasons for one's needs, wants, and interests... such self-knowledge is a prerequisite for autonomy in self-directed learning' (Mezirow 1985, p. 27). It is fair then to suggest that educators have an important role to enhance students' ability to learn in a way that 'enhances their capability to function as self-directed learners' (Mezirow 1981, p. 137).

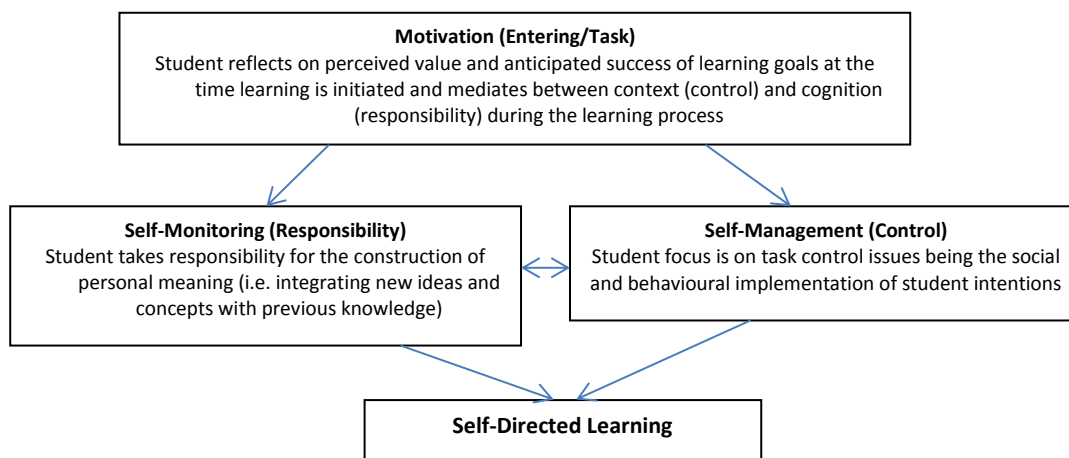
The literature provides some useful insights into the complexities of self-directed learning and the implications for educators. Garrison (1997) offers a useful definition of self-directed learning as an approach where students are motivated to assume personal responsibility and collaborative control of the cognitive (self-monitoring) and contextual (self-management) processes in constructing and confirming meaningful and worthwhile learning outcomes. Another view comes from Brockett and Hiemstra (1991) who proposed a *Personal Responsibility Orientation* model to explain self-directed learning. They suggest that in order to

understand the complexity of self-direction, it is essential to recognize differences between self-directed learning as an instructional method and student self-direction as a personality characteristic. These two dimensions are linked through the recognition that each emphasizes the importance of students assuming personal responsibility for their thoughts and actions. Knowles defined self-directed learning as:

The process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing learning strategies, and evaluating learning outcomes (1970, p.7).

What appears to be clear is that self-directed learning, invokes both social and cognitive issues, that is, issues of 'self-direction' and 'learning' respectively (Garrison 1997). These cognitive and social issues within self-directed learning are key to the model developed by Garrison (1997, p.22) which includes three overlapping dimensions: self-management (task control); self-monitoring (cognitive responsibility); and motivation (entering any task). This model is presented as Figure 3.2:



**FIGURE 3.2: GARRISON'S DIMENSIONS OF SELF-DIRECTED LEARNING**

Adapted from: Garrison, DR, 1997.

As discussed in 3.2.1, reflexivity is an important element of self-directed learning and calls for students to use double-loop learning (Eberle 2009). Cooper (2004, cited in Eberle 2009) eloquently explains double-loop learning as a high order learning where students question the goal structures and rules when they detect an 'error' in their thinking, something like 'colouring outside the lines' to solve a problem (2009, p. x). This process may lead to alterations in student plans, strategies or consequences initially related to the 'problem' at hand from changes to a student's habit of thought (see 3.2.1). A critical element of double-loop learning is students exploring the process of how they came to a specific conclusion, how the process they undertook may potentially lead to other solutions, and how their [student] assumptions may have changed through the process of engagement.

For self-directed learning to be successful, both educators and students need to be familiar with the concept (i.e., have a cognitive understanding of the self-directed learning process) and possess the skills required to implement it (Knowles 1998). Of note, Knowles highlights important competencies for educators wishing to promote

self-directed learning as a pedagogical approach. Competencies seen as fundamental for an educator are summarised as:

- creating a learning environment characterised by mutual caring, support and intellectual rigour;
- diagnosing learning needs and more importantly the capacity to help students diagnose their own needs;
- assisting students to set their own goals by translating learning needs into clear, realistic and achievable objectives;
- promoting collaborative learning (as discussed in 3.5.2); and
- evaluating learning outcomes in a way which promotes both reflection on learning and peer review (Levett-Jones 2005).

Of note is the need for educators to provide students with support in making choices about their learning pathways and to analyse the implications of any such choices (Attard, Di Lorio, Geven & Santa 2010). However, as Candy (1991, p. 309) writes, a student's 'autonomy' or ability to be self-directed is likely to 'vary from situation to situation' so educators should not assume that because a student has been self-directed in one situation, that he or she will be in another.

From defining self-directed learning and identifying important educator competencies to facilitate it, it is also useful to consider the pedagogical approaches that will support it. Authentic learning is a pedagogical approach that focuses on aligning the conditions and enablers for self-directed learning (Herrington 2015). It is arguably an appealing pedagogical approach because it situates knowledge in realistic contexts. It requires 'the creation of meaningful products that are worthy of the investment of time and effort that students put into them' (Herrington, 2015 p. 65). In authentic learning the task governs the activities that students perform, the educator's role is a supportive one, and the outcome is a genuine and

worthwhile 'product' (Herrington 2015). In essence it is the 'students who decide the most effective pathways to learning as they engage collaboratively in the creation of genuine, worthwhile and meaningful artefacts' (Herrington 2015, p. 61). This can create a challenge for educators to craft complex tasks that enable multiple diverse outcomes (Herrington 2015).

Other research outlines the elements of authentic learning in the context of authentic e-learning (Herrington, Reeves & Oliver, 2010). The authors suggest an authentic context as one that reflects the way the knowledge will be used in real life with tasks (and sub-tasks) that are ill-defined and have real world relevance. Such tasks can be seamlessly integrated into assessment and allow for competing solutions and a diversity of outcomes. Importantly, in any authentic learning context students need to feel enabled and encouraged to explore different perspectives on topics from varying points of view (Herrington et al. 2010).

Authentic learning also provides a non-linear organisation of information to enable students to readily return to any element of their learning journey if desired. This non-linear approach affords students an opportunity to compare themselves with experts and other students during stages of the learning experience (Boud, Keogh & Walker 1985; Schön 1987).

Kember also found that self-directed learning could be developed by setting assignments which required students to find materials themselves, hence helping the development of self-directed learning (2009). As explained in this research,

‘sometimes the notes given do not contain all the information, then we will look up from the references for details of the situation, what is happening and the current thinking abroad’ (Kember 2009, p. 46).

In summary, designing pedagogical approaches that support self-directed learning, requires educators to commit philosophically (also discussed in 3.4.1) and practically. It would appear that there are a number of critical competencies needed in an educator’s ‘toolkit’ such as authentic learning experiences which may support self-directed learning. Furthermore the extent to which students believe their needs, concerns, learning ‘difficulties’ and personal goals are considered by educators reflects positively on both their sense of academic ability and development of self-directed learning (Alt 2015).

From the examination of the literature, the seventh postulate emerges which can be subject to empirical scrutiny to confirm/disconfirm the importance of pedagogical approaches that support self-directed learning as a justified component of graduate attribute development.

**Postulate 7:**

A student’s ability to employ self-directed learning strategies may increase in an authentic learning environment.

***3.4.2 Learning partnerships that support self-authorship***

In 3.3.1 the importance of an educator’s philosophy was discussed, and the need to review educator conceptions of teaching and learning. It is argued that there needs to be a shift of perspective moving from viewing the educator as the legitimate

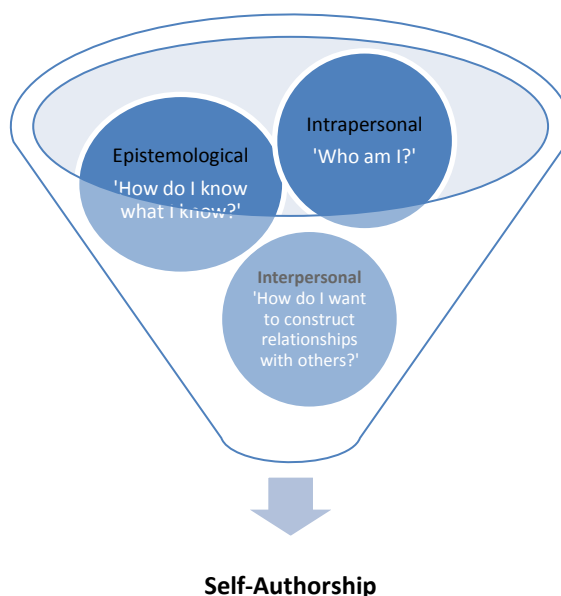
bearer of knowledge in the learning environment and source of all information, to recognising that knowledge is co-constructed in the relationship between educator and student (Freire 1970, 1996, cited in Richards & Richards 2013; Levett-Jones 2005).

Viewing educators and students as learning partners is an important condition for students' development (Meszaros 2007), however, for educators and students alike, accommodating changing perspectives can involve altering habits of thought (Mezirow & Taylor 2009) which are core to stabilising our personal identity (as discussed in 3.2.1). Hart (2001) and Mezirow (2009) termed such a paradigm shift as 'transformative learning' and acknowledged that shifting of perspectives and a renewed awareness of self and the world experienced, can be quite daunting for educators and students alike (Land & Meyer 2010).

Given the importance of validating students as knowledge constructors, situating learning in the students' experience may support the development what is termed self-authorship. The self-development concept of self-authorship is defined as 'the ability to collect, interpret and analyse information and reflect on one's own beliefs in order to form judgements' (Baxter Magolda 2004, p. 143). It is more than an acquired skill and requires complex ways of making meaning of personal experiences. For example, it is likely that a graduate employee will need to be self-initiating, self-correcting, self-evaluating and be able to take responsibility for what happens to him/herself. These expectations require self-authorship as they require the ability to construct a vision, to make informed decisions with others, to act

appropriately and to take responsibility for individual actions. (Baxter Magolda 2004).

Baxter Magolda (1998) identifies three dimensions answering three simple questions posed by students during their journey toward self-authorship. These questions are: 'How do I know?'; 'Who am I?' and 'How do I want to construct relationships with others?' The three dimensions of self-authorship are firstly, the epistemological which assists students to answer the question 'How do I know?' Secondly, the intrapersonal dimension where students find answers to the question of 'Who am I?' and thirdly, the interpersonal dimension where students come to a strong sense of self and are able to master responses to 'How do I want to construct relationships with others?' These dimensions are interconnected or perhaps come together through a 'funnel' according to the experiences of the student as depicted in Figure 3.3:

**FIGURE 3.3: THE FUNNELLING OF THE STUDENT'S INNER VOICE**

In addition to the dimensions of self-authorship, Baxter Magolda (2004, pp. 17–18) outlines four phases which students typically move through in order to develop a capacity for self-authorship. She suggests students need to move ‘from absolute knowing’ in which knowledge is assumed to be certain, through ‘transitional knowing’, in which knowledge is believed to be uncertain,’ to ‘contextual knowing’ in which knowledge claims are made based upon relevant evidence within a context.

In Figure 3.4 the phases of self-authorship are depicted. The phases encompass following external formulas, coming to crossroads, and three elements of meaning-making (Baxter Magolda 2008). Each phase reflects a distinct focus, yet all three are based on the same underlying organising principle that is the importance of internally determining one’s beliefs, identity and social relations. Baxter Magolda

(2008) argues these phases are not linear although when the student becomes the author of self, he or she is moving away from following external formulas to developing the inner voice and creating a meaning of life based on internal identity (i.e. a values and belief system).

**FIGURE 3.4: PHASES OF SELF-AUTHORSHIP**

<b>Types of Development</b>	<b>Following External Formulas</b>	<b>Crossroads</b>	<b>Self-Authorship</b> Trust internal voice → Build a foundation/philosophy → Secure internal commitments		
Cognitive development: How do I know?	Believe what authority believes	See need for own vision	Identify beliefs	Build a belief system	Secure belief commitments
Intrapersonal development: Who am I?	Define self through external others	See need for internal definition	Shape identity	Build a foundation for identity	Secure identity commitments
Interpersonal development: How we construct relationships	Approval seeking in relationships	See need for authenticity	Guide social relations	Build a foundation of social relations	Secure social relation commitments

Source: Baxter Magolda, M, 2008.

One of the challenges for educators and students in building learning partnerships and developing self-authorship is explained by McNiff and Whitehead (2011) who use the powerful metaphor of the ‘high ground’ and ‘swampy lowlands’ developed by Schön (1983) to describe the ‘contested territory of professional landscapes’ in the learning environment. Here McNiff and Whitehead refer to the high ground as being occupied by the ‘intellectual elite, who produce legitimate theory and view the knowledge creation activities of practitioners in the swampy lowlands to be valuable for leading everyday lives, but not real theory’ (McNiff & Whitehead 2011, cited in Richards & Richards 2013, p. 781). It is contended that this metaphor highlights the epistemic discord between a student’s perception of where knowledge is located and where educators might expect it to be co-constructed. It



is likely that in a 'swampy lowlands' learning environment, as an educator attempts to draw on students' experience as a source of knowledge, this will lead to a mismatch of expectations as students see themselves as recipients of knowledge (Meszaros 2007).

To address this challenge and create a paradigm shift for students to actively participate in the construction of knowledge and build self-authorship, Belton points to the need for the teaching/learning relationship to be robust (2009, p. xi). However, as Freire observed, the dynamics of power in the educator/student relationship are challenging and complex (1970; 1996). For example, if students are not familiar with an academic debate, which challenges assertions and ideas, they may feel that in being asked a question they are expected to give the right answer, and if the response they give is not affirmed or is challenged by the educator, it is perceived as a 'put down' (Richards & Richards 2013).

A further potential challenge for students to see themselves in a learning partnership is the extent students' perceive they are in a psychologically safe learning environment (see 3.1.4), and to take on board that knowledge is contested requires an epistemological shift for students, to see themselves as part of a process (Bruner 2006). It is likely that some students may embrace the opportunity to be part of knowledge construction, whilst others may feel threatened or even resentful towards a more 'open' teaching-learning process (Richards & Richards 2013).

Creating a psychologically safe environment may minimise some of these student concerns which means educators finding a 'balance' between what Keagan calls informative learning (Keagan 2000), delivered by a voice of authority and those parts that constitute a more dialogic approach to learning where knowledge is 'witnessed and exercised as a co-constructed activity' (Richards & Richards 2013, p. 783).

There are other strategies for educators to foster learning partnerships and self-authorship through participative pedagogy, by way of validating 'tutorial talk' in the learning process. This is supported by research that points to a continued focus on content in the learning environment rather than on the more nuanced process of understanding derived from the benefits of 'talk' (Lyle 2008; Swanson 2010; Thompson 2008).

Another interesting aspect of participative pedagogy important to building learning partnerships is 'discussion' however; students don't necessarily see 'discussion' as part of the 'structure' of the learning environment (Richards & Richards 2013). For example, a free discussion does not necessarily follow logical pathways. If students are not able to recognise the 'flow' and connect the different contributions, this may impede them from being co-constructors of knowledge. Richards and Richards (2013) note that for some students' information transmission, in neatly packed units, is important for filtering in order to answer 'assessment' questions. This is perhaps not unreasonable if students are focused on the outcome and do not value

or see the value of the learning process, or if the process is not promoted clearly by the educator as vital to learning.

A further valid participative pedagogy to build learning partnerships is the use of questions. Questioning can enable articulation of thoughts and experiences and can help situate students in the learning experience, a condition for learning partnerships and self-authorship (Richards & Richards 2013). According to Morgan and Saxton (2006) such a level of 'personal engagement' activates the affective domain of learning and as a result, Dillon (1994) argues, students 'feel it': the adrenalin is flowing and students express themselves. Educators seeking 'interpretive' responses to questions and wishing to encourage self-authorship might usefully minimise the perception of the binary 'right' or 'wrong' and initiate a move towards a visible co-construction of knowledge (Morgan & Saxton 2006).

A clear message from the research is educators need to work alongside students to highlight the partial and contested nature of knowledge and to work in a way that actively encourages students to make connections with the subject matter, and to 'help students to develop a critical approach to everything they read, hear, write and say' (Welch 2006, p. 15). It may be useful for educators to reiterate prior to, or early in a unit, the troublesome or perhaps challenging nature of the learning journey, so that students can work knowingly rather than feeling threatened by any notions of uncertainty and confusion (Richards & Richards 2013).

Articulating such challenges about knowledge construction may help build rapport with students and engender trust (as discussed in 3.2.4). This means working respectfully with whatever responses a student chooses to share to build such a trust (Richards & Richards 2013). Of interest is the commentary by Morgan and Saxton (2006) who suggest that it is students who are often 'reading' the emotional engagement of the educator more effectively than the other way around. Students may not understand what the educator is talking about, but it appears they are always aware of the emotional sub-text (Morgan & Saxton, 2006).

This idea about the emotional engagement of the educator in building learning partnerships to facilitate self-authorship highlights the importance of dialogic stance. Boyd and Markarian (2015) suggest the dialogic stance of the educator is the key to the dialogic process and impacts on the extent that learning partnerships are formed. They suggest that dialogic teaching is not defined by discourse structure so much as by discourse function. Furthermore they argue that when educators adopt a dialogic instructional stance, 'they treat dialogue as a functional construct rather than a structural construct and classroom democracy can thrive' (Boyd & Markarian, 2015 p. 272). Their research found that dialogic talk functions to model and support student cognitive activity, and inquiry may facilitate an emotionally supportive learning environment where multiple voices and perspectives are engaged.

The role of the educator is important for any epistemological shift so students see themselves as part of knowledge construction. Students are often exposed to the

explicit and implicit message that 'your' viewpoint does count but the student voice needs to be given authority through their reference to the relevant academic literature. This requires students to show critical thought in their commentary (Richards & Richards 2013). Hence, to express a viewpoint requires students to develop their voice by subjecting their opinions to critical examination. For many students this creates a challenge in being able to draw upon their own experience in order to create and manipulate knowledge. Richards and Richards note this necessitates students to 'develop a reflective consciousness which allows them to draw on their direct participation in events of life and give it meaning' (2013, p. 781).

Further to encourage student voice and belief that they are co-constructors of knowledge, educators need to give students access to a range of theories and foster emotional connection to topic (Richards & Richards 2013). Asking students questions about what they 'feel' as well as what they 'think' may be a way of eliciting a more interpretative response in favour of a binary right/wrong. Perhaps educators need to re-affirm an individual student's perspective taking or 'stance' as a way of probing students' thoughts and feelings still further. As discussed earlier, questions can be posed to draw out reasons for particular viewpoints, to draw out ideas reflected upon, to show justification for a viewpoint, and to direct links with lived experience.

It can be seen that participative pedagogy may help students develop their self-confidence and engagement in learning partnerships as they grow in the capacity to

think independently, and to develop a critical awareness of assumptions held of self and others (Richards & Richards 2013). As students progressively subject their opinion to academic debate and critical thinking, their ability to evaluate the sources that inform their opinions develops. For this growth to occur it is important for educators to communicate openly to students that what counts is not the opinion itself, but how the opinion came to be formed.

In summary, learning partnerships can engage and empower the diversity of today's student cohort and lead to sharing authority and responsibility with educators (Cook-Sather & Agu 2013). Such partnerships may support self-authorship by validating students' capacity as knowledge constructors, situating learning in the student's experience, defining learning as mutually constructed meaning, and using participative pedagogies that consider the student voice. Developing engaged students through learning partnerships may lead to benefits for both educators and students. Dickerson, Jarvis and Levy (2014) conclude from their research that:

[Staff-student] partnership in learning and teaching has a significant impact on learning and teaching development and enhancement, learning to learn, raising the profile of research into learning and teaching, and employability skills and attributes. (2014, p.20).

From the examination of the literature, the eighth postulate emerges which can be subject to empirical scrutiny to confirm/disconfirm the importance of learning partnerships that support self-authorship by validating student's capacity as knowledge constructors, as a justified component of graduate attribute development.

**Postulate 8:**

A student's ability to show self-authorship may be increased if learning partnerships are formed.

**3.5.3 Assessment criteria and standards based on an educational taxonomy**

As noted in Chapters 1 and 2, many Australian educators are yet to develop clear strategies for developing and assessing graduate attributes within their specific disciplinary contexts (Barrie 2005; de la Harpe et al. 2000; Green et al. 2009). What appears to be required in assessment is a shift from a focus on content, to one that integrates content with process, with 'how to' as well as 'what' and the 'why' (see 3.4.2).

In creating a student-considered learning environment, educators need to begin by identifying where a student is developmentally, and then clearly articulating both a student's and educator's expectations of the learning experience. One way of bringing learning outcomes (such as the development of graduate attributes) and the process together, is to clarify a student's current level of competence and identify the required level of competence. This can be undertaken by using a recognised educational taxonomy (Lueg et al. 2015).

Taxonomy classifications give a useful foundation for learning and assessment as they allow an educator to establish an upper and lower set of standards and criteria for achievement. As taxonomies are expressed as generic developmental levels, educators need to 'interpret' each level to reflect the level of development required (see Figure 3.5), to precisely express intended learning outcomes, and discard

imprecise and empty phrases such as ‘use several theoretical tools’ (Biggs & Tang 2011; Lueg et al. 2015).

Biggs and Collis (1982) *Structure of the Observed Learning Outcome* (SOLO) Taxonomy is a useful way to describe how students can develop their approaches to learning and help move students from a surface to a deep approach to learning (see 3.3.2). The SOLO taxonomy is recognised as a sound tool for analysing competence progression and a useful framework for providing both feedback and feedforward to students (Rourke & Kanuka 2009).

The five ‘levels’ of the SOLO taxonomy and their descriptors, as they become evident in student assessment items, are:

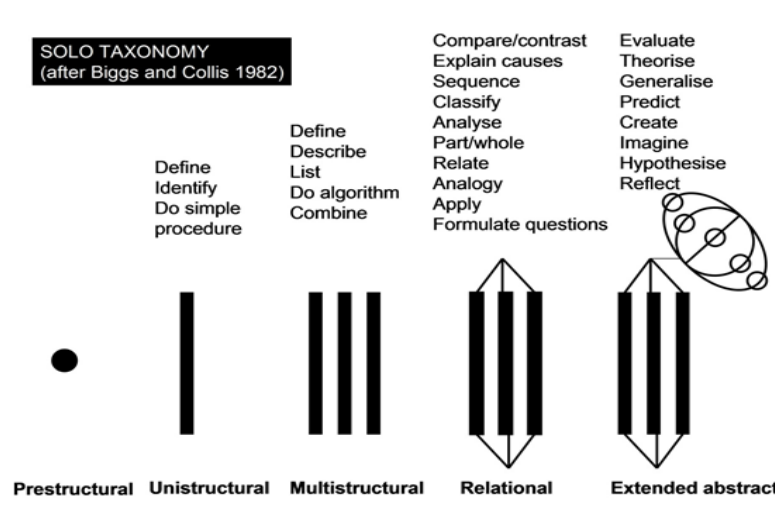
1. **Pre-structural** : No knowledge about the topic is apparent in the student’s work:  
‘I am not sure about...’
2. **Uni-structural**: The student shows some understanding of at least one aspect of the topic:  
‘I have one relevant idea about...’
3. **Multi-structural**: The student grasps a number of ideas about the topic, but does not relate them to one another, or to the central question, and the information is presented descriptively, or in list form:  
‘I have several ideas about...’
4. **Relational**: Here the student relates all the significant aspects of the topic to one another, and brings them together to form a coherent point of view so that the work can stand as a whole:  
‘I have several ideas about...’ ‘I can link them to the big picture’
5. **Extended Abstract**: Now the student brings all the significant aspects of the topic together, and takes them further by extending their application into other domains, hypothesising about related issues, or reflecting on their own actions and understanding. (Atherton 2005; Lueg 2015)



'I have several ideas about...' 'I can link them to the big picture'  
 'I can look at these ideas in a new and different way'.

Figure 3.5 shows each of the five levels of the SOLO Taxonomy and the verbs used to describe activities required by students at each level.

**FIGURE 3.5: BIGGS & COLLIS SOLO TAXONOMY OF EDUCATIONAL OBJECTIVES (1982)**



Source: Biggs J, and Collis K 1982, *Evaluating the Quality of Learning: The SOLO Taxonomy*, New York, Academic Press.

Both levels 4 and 5 in the SOLO taxonomy represent deep learning, however, only level 5 (Extended abstract) develops the multi-functional capabilities needed by students to master relevant tasks in unfamiliar or novel situations. When level 5 is reached, students are likely to have the ability to generalise and reflect beyond the given unit area (Lueg 2015). Furthermore, the phrasing of intended learning outcomes, if educators are to enable the development of graduate attributes as key process outcomes, needs to include an activity (e.g., 'create a communication

strategy ...') thus making it possible for both educator and student to measure performance.

However, some argue that there are issues with developing assessment criteria based on the interpretation of a taxonomy of educational objectives. For example, if a student establishes a relational construct which is wrong, he or she may continue to pursue inappropriate 'solutions' at the extended abstract level if they are perhaps insufficiently informed at more modest levels (Atherton 2003). What is important is educators using assessment criteria and standards based on interpreted taxonomy, to inform the formative and summative feedback given to students.

At this juncture it is useful to explore the process of providing feedback as a component of assessment within the context of taxonomies. Yorke (2003, p. 483) suggests that without informative feedback on what they do, students will have 'relatively little by which to chart their development'. Students must know what good performance is (the concept of a goal or standard), how current performance relates to good performance, and how to act to close the gap between the two (Sadler 1989; Rust, O'Donovan, & Price 2005). Feedback provides students with information about where they are in relation to personal learning goals and unit learning outcomes, enabling them to evaluate their progress, identify gaps or misconceptions in their knowledge and take remedial action. Crucial to students being able to evaluate their progress is the intentionally written and oral assistance (or 'scaffolds' in the sense of Vygotsky 1978) provided by the educator.

Some research contends that feedback is not easily transmitted and is not controlled entirely by the educator: students generate their own internal feedback (as discussed in 3.2.1) (Nicol & Macfarlane-Dick 2006). These authors argue for locating the student as occupying a central and active role in all feedback processes. This may involve students in the 'creation of original [assessment or performance] criteria, peer and self-assessment' (Dahlgren, Fejes, Abrandt-Dahlgren & Trowald 2009) as it seems inappropriate for educators 'to treat assessment any differently from learning' (Rust et al. 2005, p. 237).

Feedforward is equally important to students' progress as feedback and looks ahead to the next assignment or learning experience, offering constructive guidance by the educator on how to do better in future work. A combination of both feedback and feedforward ensures that assessment has an effective developmental impact on learning, providing the assessment is appropriately designed, self-directed, reflective, and authentic. By also including personal student reflection, combined with the educator's feedback within the SOLO taxonomy, this can lead to feedforward. For example, students may be able to elaborate on an educator's suggested solutions and identify their strengths and weaknesses which represent problem-solving at Level 4: Relational (according to Biggs and Collis' taxonomy, 1982). Critical to the effectiveness of using assessment standards based on taxonomy, is that students have opportunity and support to develop their own evaluative skills in order to use both feedback and feedforward effectively (Murtagh & Baker 2009).

It is proposed that assessment criteria and standards for graduate attribute development be aligned to a taxonomy (such as SOLO), but not in isolation. Assessment criteria and standards should be embedded in Biggs and Tang's (2011) constructive alignment to ensure that teaching and assessment and learning outcomes go together. Constructive alignment means engaging student in the 'verb' in the intended learning outcome (which is expressed from the student's perspective), through relevant learning experiences leading to observable and assessable behaviour. Constructive alignment aims to overcome the 'hiatus between espoused theory and theory-in-use' of the educator (as discussed in 3.4.1) (Biggs 1996, p. 349). Biggs goes on to state that teaching concepts need to 'address the system as a whole, not simply add "good" components, such as a new curriculum or methods' (1996, p. 350).

In summary, any approach to assessment must be holistic in its intention and implementation, and not simply fragmentary (Rigby 2010). That is, the assessment process must be constructively aligned with the intended learning outcomes of a unit. Developing assessment criteria and standards based on the interpretation of a recognised educational taxonomy may inform and identify feedback and feedforward, and present educators and students with a further opportunity to go deeper into the learning experience (Biggs & Collis 1982; Biggs 1995), potentially increasing the potential for graduate attribute development. The literature also highlights that the learning and assessment process needs to consider where

students are on the developmental continuum, particularly encouraging a student's evaluative skills.

From the examination of the literature, a ninth postulate emerges which can be subject to empirical scrutiny to confirm/disconfirm the importance of assessment criteria based on a recognised educational taxonomy that may foster student engagement and self-regulation. Using taxonomy may assist in identifying and informing feedback and feedforward on a student's development, and therefore a justified component of graduate attribute development.

**Postulate 9:**

Assessment criteria and standards based on interpretation of a recognised educational taxonomy may inform identification of feedback and feedforward and increase self-regulation.

**3.4.4 *Reflective, self-directed, and authentic assessment***

How graduate attributes are best assessed is the subject of much debate (Rigby, 2010; Oliver, 2011) but there seems to be a shift in the literature from measuring (standardised assessment) to judging student development. As noted in Chapter 1, if we consider the 'reconceptualisation' of graduate attributes to mean the inclusion of more abstract concepts such as social responsibility, ethical practice and sustainability, then it is reasonable to state that standardised, metric assessment will be inappropriate (Barrie 2008; Oliver 2011). Further to this learning in any setting (whether work or life settings) is socially constructed and situated in communities of practice (as discussed in 3.5.2). It is not always clear though, what communities of practice students (then graduates) will be entering or moving between in their studies, and personal and professional life (Boud & Falchikov

2006). So, in order to bridge this gap there is a need to revise assessment practices, as they can play an important role in the alignment of lifelong, sustainable learning and assessment (Rigby 2010) (see Chapters 1 and 2 and 3.4.3).

For educators, making judgements on student development can be based on a broad range of evidence, including student portfolios, self and peer-assessment within and beyond the learning environment (such as workplace learning through corporate internships), as well as artefacts from formal assessment tasks (Brown, Rust & Gibbs 1994; Berry 2008; Oliver 2011). In support of this emerging paradigm shift to judging student performance, Yorke (2008) advocates educators asking students how they have met the assessment criteria for a unit through their learning. Students can then make a case to the educator using evidence which could include marks or grades, qualitative assessments of performance, work placements (if applicable), and claims of 'unassessed' achievements (Yorke 2008). Such 'unassessed' items may include contributions to group learning processes, a personal development plan, contributions to tutorial discussions, a personal learning journal, and evidence of for example communication skills employed to achieve individual tasks or sub-tasks of a learning activity (see 3.4.1).

As part of this discussion on judging performance, sits the use of student portfolios (Rigby 2010). Portfolios are an example of an authentic assessment item: a tool that enables students to assume responsibility for demonstrating evidence of their achievements within and 'beyond the curriculum' (Oliver 2011, p. 15). Much interest has centred on portfolios uptake (Chen & Light 2010; Oliver 2010a; Hallam,

Harper, Hauville, Creagh, & McAllister 2011, Brown & Knight 1994; McDowell & Sambell 1999; Falchikov 2005), but also on the challenges that portfolios and other approaches, such as self and peer-assessment and projects, to judging performance may have for educators. Such challenges may include the extent of student engagement in the learning experience (Jafari 2004, cited in Oliver 2011) and if decisions about judging graduate attributes are reflected in the meaning they hold by educators (Rigby 2010). The extent to which there is a shared understanding by educators and students of the measures for judging performance may lead to, as noted by Hanrahan and Isaacs, 'providing clearer and more detailed standards [which] may lessen students' uncertainty about the standards required' (2001, cited in Rigby 2010, p. 66).

Another challenge regarding student portfolios as an authentic assessment strategy to judge performance, is the difficulty in creating a shared meaning regarding measures or standards. This can be perpetuated when students are engaged in self-assessment or when engagement involves considerable critical thinking. (Lawson, Taylor, Thompson, Simpson, Freeman, Treleaven & Rohde 2012). Another challenge for educators is if students lack the ability to 'manipulate' criteria in ways which allow them to be easily applied to outside the learning environment context, such as in the workplace (Lawson et. al. 2012).

In discussing the value of authentic assessment, it is useful to examine what an authentic learning 'context' looks like. Research points to authentic learning reflecting the way knowledge will be used in real life (Oliver 2010). Tasks need to

be ill-defined, requiring students to define not only the tasks but the sub-tasks needed to complete the learning activity. Ideally tasks should be investigated by students over a period of time (such as throughout the unit) and seamlessly integrated into assessment, allowing competing solutions and a diversity of outcomes (Herrington, Reeves, Oliver & Woo 2004).

Herrington et al. (2010) provide a useful continuum for comparing authentic and academic tasks in relation to two different e-learning courses, as shown in Figure 3.6. In this example, the task on the right is more authentic as judged on all the elements because it provides a realistic and complex activity that requires decision-making by students, and takes a few weeks of a semester to complete. The task on the left 'is a more academic, decontextualized one, with limited, relevant resources taking minutes or hours to complete' (Herrington et al. 2010, p. 79). Although this 'model' is comparing tasks in e-learning, it may be useful for educators using other pedagogical approaches when seeking graduate attribute development.



**FIGURE 3.6: EXAMPLE USE OF CONTINUUM FOR AUTHENTIC AND ACADEMIC TASKS**

Element of authentic learning	Guidelines for Implementation	Continuum of characteristics Non-authentic → Authentic	Guiding Questions
Provide authentic tasks	Tasks that have real-world relevance	Academic → Real-world	Does the task mirror the kind of task performed in real world application?
	Ill-defined complex activities that provide an opportunity for students to define the tasks and sub-tasks required to complete the activity	Multiple small tasks → Complex task	Is the task presented as a series of small sub-steps or as an overarching complex problem?
	A sustained period of time for investigation	Short Time → Long time	Do students work on the task for weeks rather than minutes or hours?
	The opportunity for the detection of relevant versus irrelevant information	Limited Information → Broad information	Are students able to choose information from a variety of inputs, including relevant and irrelevant sources?
	Tasks that can be integrated across subject areas	Single discipline → Multi-discipline	Are tasks and strategies relevant to other disciplines and broader knowledge?

Source: Herrington et al. 2010, p. 79

Berry (2008) refers to both self-assessment and peer-assessment as valid forms of self-directed, reflective and authentic assessment. Research suggests that self-assessment, including reflective tasks, enables students to evaluate and measure their own performance (Brown & Glasner 1999). The use of self-assessment helps students to examine their views of and attitudes to their roles and responsibilities in the learning and assessment process (Falchikov 2005). Boud shares this view and asserts that a feature of a desirable view of assessment is a focus on students becoming reflexive (2007) and self-regulatory (Karoly 1993) (as discussed in 3.2.1). Both self and peer-assessment require students to reflect on their learning and anticipate what could be done to improve it. Berry goes on to say that through these kinds of assessment students can develop their metacognitive abilities, including monitoring their own learning, and developing the ability to judge and

evaluate their own and their peers' work and make appropriate decisions about what to do next (2005).

In advocating either self or peer-assessment, it is imperative that students have both the desire and capacity to 'take charge of their learning through developing skills in self-assessment' (Berry 2008, p. 85). Contingent to success of self-directed assessment is the educator's ability to explain to students the significance to learning of self and peer-assessment, providing explicit criteria for success, along with ongoing monitoring of the assessment process. It is also suggested that the introduction of self-directed assessment is done on an incremental basis to allow time and opportunity for students to gain confidence in assessment that has its focus on judging performance through a variety of sources of evidence (Berry, 2008).

Having discussed the merits of authentic assessment, it is also important to acknowledge two cited 'limitations' to authentic assessment (Reeves & Okey 1996, cited in Herrington et al. 2010). First, authentic assessment does not allow easy comparison among students, and secondly it 'does not provide information about the generalisability to other contexts' (Herrington et al. 2010, p. 36–37). The first issue is seen to be valid by researchers and needs educators to address by coming to a clearer consensus about the purpose of assessment. The second concern regarding generalisability was responded to by Young (1995), who argued that assessment needs to be viewed in a more functional manner and validated, not

solely by its stability as a psychometric instrument but more critically by its real-world usefulness.

Other authors speak to the value of integrating student voice into authentic, reflective, self-directed assessment practices (Bain 2010). As previously noted student voice covers a range of activities that encourage reflection, discussion, dialogue and action on the construction of the learning experience (Fielding 2004). This opportunity for voice is in harmony with an agenda in the higher education environment of social inclusion and empowerment for all students (Bain 2010). Student voice is also about students and educators working and learning together in partnership (Fielding 2004). Through dialogue educators and students engaged with other students, can elicit students' every day 'common sense' perspectives, engage with their developing ideas, and help students overcome misunderstandings.

In response to perceived 'limitations of authentic assessment', a conceptual model for authentic student voice in assessment has been proposed by Robson (2002, cited in Bain 2010). It encompasses a number of key elements including space for students to express a viewpoint, an opportunity for students to express their views, an audience who will listen to these views, and an audience who can 'influence' views to be acted upon in the appropriate manner (Lundy 2007). Batchelor (2006) suggests educators consider different modes of student voice and asserts that these may be viewed as three constituent elements:

1. An epistemological voice or a voice for knowing;
2. A practical voice, or a voice for doing; and
3. An ontological voice or a voice for being and moving forward (Batchelor 2006, p. 787).

Educators should consider assessment that values and validates the experience students bring, and situates this experience at the centre of the learning process with the aim of further student engagement in the process (Giroux 1989). The importance of allowing students an ontological, epistemological and practical voice in the learning and assessment process is important (Batchelor 2006). Furthermore, effective pedagogy fosters the student voice, space, audience and 'influence' in creating integrated assessment as a component of pedagogy, allowing for a range of assessment purposes, methods and approaches centred on collaborative, reflective, authentic and self-directed practices (Bain 2010).

From the above examination of the literature, the tenth postulates emerges which can be subject to empirical scrutiny to confirm/disconfirm the importance of appropriately designed assessment as a justified component of graduate attribute development.

**Postulate 10:**

Appropriately designed assessment that is self-directed, reflective and authentic is an identifiable feature of graduate attribute development.

The above four postulates relate to the transfactual conditions that are assumed to exist for the learning environment (as the operationalisation of the educator's intentions) to contribute to the model of graduate attribute development.

### **3.5 STUDENT-STUDENT BASED FACTORS**

Identification of components of the model continues with description of student-student based factors which may increase a student's potentiality for the development of graduate attributes. Two key components that relate to student-student based factors have been identified.

#### ***3.5.1 Students exerting pressure on the learning environment***

There is evidence of the importance of students needing to change by incorporating new habits of thought in order to be successful in higher education (Jones 2009b). This stems from the assertion that 'education is a process of changing behaviour patterns of people' (Tyler 1949, pp. 5–6), using behaviour in the broad sense of encompassing thinking, feeling and overt action.

From the discussion in this chapter so far, it could be concluded that altering student behaviour may result from, for example critical thinking, reflexivity and student identified or determined opportunities for self-development identified in partnership with educators but also with other students (Jones 2007). As outlined in 3.5.2, the concept of student self-authorship may also support students to reflect on their 'beliefs in order to form judgements' which may inform their habits of behaviour (Baxter Magolda 2004, p. 143).

Jones (2009b) further argues that internal student change is possibly due to student interaction with the learning environment. This process begins with an interaction between a student as an individual and as a group member, with the learning

environment. During this period, each student (and his/her group) will engage in various learning activities which will be assessed by the educator, self or peers using both formative and summative feedback. As part of the learning and assessment process the 'fitness of the routines used by each student, and by his or her group, will be assessed' (Jones 2009b, p. 233). These routines represent the activity systems responsible for behavioural expression, for example, the content and context of the student's/group's performance in applying problem solving skills in a group learning activity, and associated student identity projected for 'intake' by the educator, or individual students (Jones 2009b). As a consequence, the habits of thought and associated behaviour (Veblen 1925) of each student are subject to distinct selection on the basis of 'their' contribution to the behavioural expression of the individual student and/or group that he or she is engaged in (Fayolle, Basso & Bouchard, 2010).

As noted in 3.3.1 and 3.2.1 respectively, freedom and reflection are important for students to be able to make decisions about the adoption of new and valuable habits and dispensing of old habits of thought as they interact with the learning environment (Whitehead 1929). When there is freedom and opportunities for reflection in the learning environment, students may interact in such a way as to assist in the development of independent action and new skills, including graduate attributes (Jones 2007; Hart 2001). Both freedom and reflection may provide the means through which individual students, and therefore a group, may alter behaviours via a distinct selection leading to a shift in their separate and/or

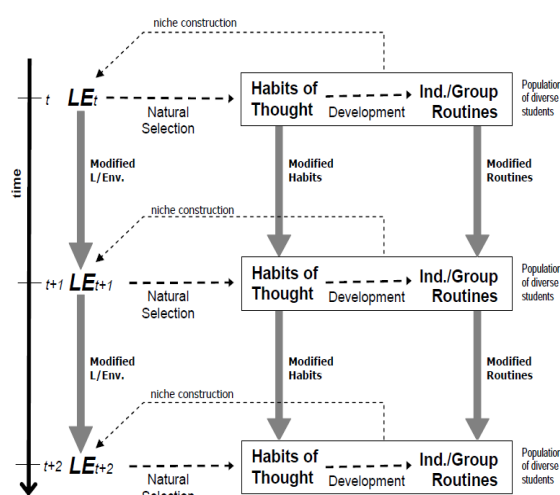
collective habits of thought. So it is conceivable that an individual student and group change can be facilitated by feedback from the educator and/or peers (see 3.3.3). Feedback may provide an indication of a student's or group's fitness of routines judged against assessment criteria at a given moment in time. Also, it may give insight into the positive and negative aspects of a student's and a group's performance, and from which future change is possible.

Returning to the work of Jones (2007), he notes that students' habits of thought can be subject to revision as students determine what cognitive abilities will best assist their progress in the learning environment. He raises the possibility that by examining the fitness of routines, this may give rise to altered habits of thought that can then be transferred from one learning environment to another, either via individual students' behaviour or through their contribution to the group's performance. Furthermore, the aspects of the modified student behaviour deemed to be favourable, and related changes to habits of thought, may be inherited by groups from one learning environment to the next. For example, students' internally held perceptions about the importance of consideration of the public interest in decision making (an element of the graduate attribute social responsibility), if altered based on individual and group feedback, may result in students using different approaches to decision making in future learning experiences.

It is further argued that the behaviours of individual students and the groups have the potential to alter the nature of any future interaction between the learning

environment and all ‘entities to be assessed’ (Jones 2009b, p. 234). This is central to what Jones refers to as the *niche construction* concept as shown in Figure 3.7. Niche construction is a process through which ‘students can alter their learning environment within their time and space and/or at least place pressure on the learning environment within their time and space’ (Jones 2009b, p. 234).

**FIGURE 3.7: PROPOSED PATHWAYS OF NICHE CONSTRUCTION**



Source: Jones 2009b, p. 154.

(Note: LE refers to Learning Environment. Time and space differences are shown as  $t$ ;  $t+1$ ;  $t+2$ . Modified habits of thought and changes to individual and group routines in learning environments are shown from  $LE_t$  to  $LE_{t+1}$  to  $LE_{t+2}$ )

So it is contended that students can indeed be the co-designers and be instrumental to change in the learning environment (see 3.4.2). Such a change may come about through examination of fitness of routines that may potentially change a student's altered habits of thought and subsequent altered behaviours. Such ‘examination’ may impact upon the design of learning and assessment processes operating on individual students and within groups (Jones 2007). As groups collectively alter their judgements as to what satisfies the intended learning objectives, that may



alter the process of 'natural selection' operating on both individual and groups (Jones 2007).

Also as students make positive changes to their habits of thought, and therefore their routines, they continue to pursue improved solutions to problems present in the learning environment. It is therefore plausible that as students strive to find better solutions; this places pressure on educators in the design and development of learning and assessment activities, creating a need for educators to make adjustments to continually stretch the students' capabilities (Jones 2007). As such, students have the ability to inherit a 'modified' learning environment due to both their indirect and direct influence.

Furthermore, there is evidence that students are capable of making intelligent choices, determining which 'profitable' experiences should be retained and which 'unprofitable' experiences dispensed with (Jones 2007, p. 235). This capability may be connected to opportunities to learn in a dynamic learning environment that is both challenging for students and also shaped by the needs and behaviours of students. For educators the message is that what is always at play is an adjusting of inner relations (i.e., students' habits of thought) to outer relations (i.e., the learning environment) and this is especially so when students are encouraged to learn through authentic learning experiences (Miettinen, 2000).

It is however important to note that changing students' habits of thought assumes that students develop the means to challenge their own 'assumptions about the

nature, limits, and certainty of knowledge' (Baxter Magolda 2004, p. 16). It also assumes that students are capable of constructing their own meaning from their learning experiences. The repeated processes across learning experiences gives rise to 'knowing' being associated with action (King & Kitchener 1994) leading to upward pressure being placed on the learning environment to adapt to accelerate the process of behaviour change as noted below by Tyler:

The purpose of the learning activities developed and continually refined is to accelerate the process of changing the behaviour patterns ... [of the students] ... using behaviour in the broad sense to include thinking and feeling as well as overt action (1949, pp. 5–6).

This discussion suggests that the needs of students, such as graduate attribute development, extend beyond the traditional educator-student approach more towards a student-considered approach which is slanted towards student self-direction, self-exploration, freedom and innovation, and where the educator recognises that students' habits of thought are 'plastic enough to be self-altered through frequent reflection' (Jones 2009b, p. 230).

From the above examination of the literature the eleventh postulate emerges, the first related to the student-student relationship. This can be subject to empirical scrutiny to confirm/disconfirm that students can put pressure on the learning environment to adapt through 'their' examination of the fitness of their routines, a justified component of graduate attribute development in the business discipline within higher education.

**Postulate 11:**

Students can alter or put pressure on the learning environment to continually 'stretch' their capabilities, as a result of examining the fitness of their routines in a group context.

***3.5.2 The nature of student collaboration and type of communal learning***

A common theme in higher education research is today's graduates are required to cooperate in groups and teams in nearly any profession, and the necessary skills for this cooperation primarily encompass implicit knowledge that can only be acquired through application. This highlights the importance of group work in higher education (Opdecam et al. 2012). For learning outcomes to be achieved and graduate attributes developed, it is argued educators need to facilitate dialogue within and/or between a group/s of students so that they can articulate, prioritise and act upon shared concerns and respond to any cultural diversity challenges they encounter in the group learning experience (Kahn 2014).

Group-based learning can foster the achievement of two key goals, deep learning and improved learning performance (Roseth, Johnson & Johnson 2008). O'Donnell suggests these two goals can be achieved through the presence of two mechanisms (2006). First, the socio-behavioural mechanism through shared values, group cohesion and a feeling of responsibility for contributing within the group learning context, can improve deep learning. Second, the cognitive mechanism affects learning through elaboration, for example when students are required to discuss their different views about the content in a learning activity (O'Donnell 2006).

Aside from these two goals, group work also serves to resolve 'constructive conflicts' creating opportunities for more abstract understanding by students (King 1997). Collaboration through group learning also provides students with opportunities to learn from their own mistakes (as discussed in 3.3.1) and potentially have better recall of content through a meaningful experience (Lueg 2015). However, important advice is offered to educators by Kember (2009), when speaking directly of graduate attribute development through group work. He suggests that group or 'communal' learning is not in itself sufficient to promote learning, as 'the nature of the collaboration and the type of communal learning activities engaged in, affect the outcomes of collaboration' (Kember 2009, p. 40).

Expanding the earlier discussion in 3.2.2 on learning approaches and strategies, Yan and Kember (2004b) have found that the types of learning activities can be classified as either engager or avoider approaches. These are seen as parallel to the student adopting either deep or a surface learning approach. In group learning, students who adopt an 'engager' approach tend to focus on collaboration to gain a better understanding of a topic. Conversely, research suggests that students who adopt an 'avoider' approach do so to minimise the work as an 'individual' in a group (Yan & Kember 2004b). It appears then that group learning is strongly influenced both the degree of collaborative learning, the type of learning activity and whether students employ an engager or avoider approach to learning (Yan & Kember 2003; 2005). Perhaps then if an educator focuses on creating a learning environment that promotes 'out-of-class' relationships, and encourages the deployment of

‘engager’ approaches, this may result in students helping each other to understand key concepts and enable graduate attribute development (Kember 2009).

Mann (2001) also speaks of another level of consideration for educators in building collaboration through group learning. He speaks of how students, if they identify as being outsiders in group learning, can feel unable to give expression to their own values and beliefs, and can be unsure as to what contribution they can make to the group learning experience. Perhaps too it should also not be surprising that group learning can be more challenging for students in the absence of pre-existing relations between a group’s members or if group learning processes are not sufficiently developed. Kahn (2014) too highlights frustrations for both educators and students that can stem from an absence of commitment by students to the group, or divisions within the group. An additional note for educators regarding building commitment, is the importance that a social or group role offers a student in providing a potential ‘locus’ for developing commitments or in ensuring that co-reflexivity in the group occurs (Kahn 2014).

In considering the commitment of students in groups, Kahn (2014) draws our attention to the concept of agency, in particular to what Archer defines as corporate agency (2003). Agency refers to the thoughts and actions taken by students to express their individual power in social context, whereas corporate agency is the way a group of students articulate their aims and develop a sense of ‘organisation’ to realise group goals (Archer 2003, p. 133). In other words corporate agency is how students assist each other towards achieving group goals and may

contribute to the extent to which students collaborate to achieve intended learning outcomes (Kahn, Qualter & Young, 2012).

Corporate agency has benefits for group learning as it is argued that building relationships between students who are working in a group is important, as students tend to orient their reflexivity and co-reflexivity to take into account the way that their 'relationship' with group members influences their chosen learning approach and development (Kahn 2014).

In exploring the notion of building collaboration it is also valuable to consider the role of student identity. An accepted view sees identity as 'an internalised set of role expectations' (Simon 2004, p. 23) that is both shaped by earlier understandings of experiences, and influences how students respond to future situations. Other research has attempted to identify characteristics of a 'fresher' student identity (Daniels & Brooker 2014, p. 71) through data from an induction questionnaire that asks incoming students about their:

learning journeys, life experiences, motivations behind choosing the degree programme and what they perceived would be the key indicators for their success at university (Stott, Zaitseva, & Cui 2012, p. 5).

Some research purports that identity plays a significant role in student self-improvement (Daniels & Brooker 2014) but identity needs to be recognised as a fluid and flexible process. In research reported by Daniels and Brooker, identity is seen as 'being dependent on a student's ability to shape, adapt, and apply the self to the

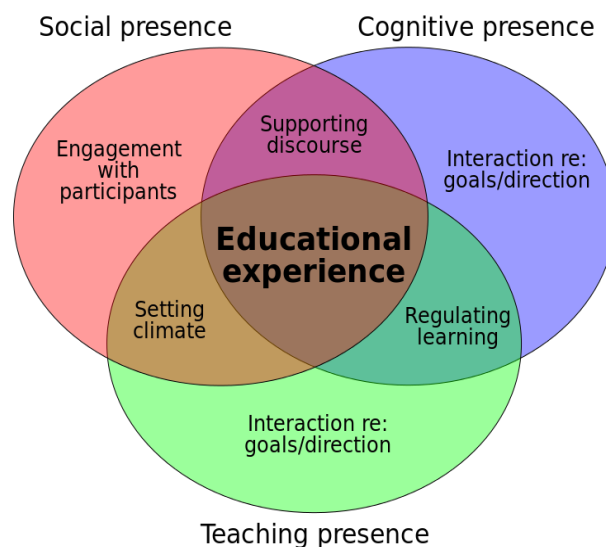
needs of a particular role' (2014, p. 69). It is further argued that whatever identity is being formed, students need to be exposed to a range of learning experiences where they consider how they interact with, and are perceived by their peers and educators. This range of learning experiences is also likely to build the student's capacity to operate effectively in broader social contexts. Ross and Buehler (2004) add to this by suggesting students with a strong awareness of identity, coupled with an opportunity to visualise and practise future situations, can create self-efficacy that may influence levels of development.

Of interest to educators seeking to build collaboration and communal learning is the concept of a Community of Inquiry (CoI), which can provide the conditions for free and open dialogue, critical debate, negotiation and agreement (Garrison et al. 2004; Akyol & Garrison 2011; Garrison, Anderson & Rourke 2004). A sense of community is considered as equivalent to a felt sense of real, meaningful connection and interaction between students their peers and educators (Bliuc et al. 2007; Rovai & Jordan 2004). Such communities require reflexive elements (as noted in 3.2.1) combined with multiple forms of communication to meet specific learning requirements. For example, at the beginning of a unit it may be advantageous for an educator to use a traditional face-to-face delivery method to start the process of building community. In contrast, discussing a complex issue which requires problem-solving skills, that requires time for reflection, may be better accomplished through an asynchronous online discussion forum (Garrison et al. 2004).

Communities of inquiry comprise three elements: social, cognitive and teaching presence (Garrison et al. 2004, p. 98). Garrison, Anderson, and Rourke suggest a sense of belonging and community by students needs to be on a social and cognitive level if learning outcomes are to be achieved by students (2004). They go on to say that social presence reflects the existence of open communication, cohesive responses and affective/personal connections, whilst cognitive presence maps the cyclical inquiry pattern of learning through reflection and conceptualisation, to action and on to further experience. Teaching presence establishes the curriculum, pedagogical approaches and also moderates, guides and focuses discourse and learning activities (Garrison & Vaughan 2008).

There is further support for teaching presence as an element of Col as it may bring about a shift from students assimilating information to constructing meaning and confirming understanding in a Col (Garrison et al. 2004). Other research by Arbaugh and Rau (2007), in a study of web-based courses, confirmed the validity of the Col in facilitating student engagement and learning where there is a supportive discourse between students and educators. They found that student interaction is significantly associated with perceived learning and development. Figure 3.8 depicts the Community of Inquiry framework.



**FIGURE 3.8: COMMUNITY OF INQUIRY FRAMEWORK**

Adapted from Garrison, R, Anderson, T & Rourke, L 2007, *Community of inquiry model*.

Other commentary suggests that Col may enable a wide range of opportunities for students to interact with each other and their educator. These interactions can result in increased socialisation, a stronger sense of being connected to each other and increased construction of knowledge through discourse. This may lead to stronger feelings that the 'learning outcomes' are being satisfied through community 'membership' (Rovai & Jordan 2004). As noted by Shulman (2004), a sense of community and collaboration among students, is a principal of authentic learning (see 3.5.1). Shulman captures the essence of collaboration as:

'They can work together in ways that scaffold and support each other's learning, and in ways that supplement each other's knowledge. Collaboration is a marriage of insufficiencies...' (2004, p. 494).

In summary, group learning may act to promote both deep and improved learning and increase the potential for graduate attribute development. However, the nature and type of communal learning and the presence or otherwise of group learning processes may impact on the effectiveness of the group learning experience. By building collaboration through group learning, a student's identity may be further developed when corporate agency is high. It is also argued that Col, embracing the key elements of social, cognitive and teaching presence, may support the development of collaborative relationships.

From the above examination of the literature, a twelfth postulate emerges that can also be subject to empirical scrutiny to confirm/disconfirm the importance of the nature of collaboration and the type of communal learning to a student's sense of identity in group learning, as a justified component of a model of graduate attribute development.

**Postulate 12:**

The nature of student collaboration and the type of communal learning activities engaged in, may impact on a student's sense of identity in group learning.

**3.6 SUMMARY**

In this chapter the four components of the proposed model of graduate attribute development have been identified vis-à-vis an examination of a broad range of literature. As noted in 3.1, this chapter sought to 'redescribe' the components of the proposed model, and where possible apply contrasting theoretical frameworks and interpretations, that may provide new insights into the possible transfactual

conditions that must be present for their collective influence upon the phenomenon under investigation (that is, graduate attribute development). This chapter has also sought to examine the identified components from contrasting perspectives and to consider the influences of the combined components under particular conditions.

It is important to emphasise again the contingent relationship between factors considered in this chapter as being student, educator, learning environment or student-student based. This relationship will be further discussed as a model for graduate attribute development is proposed in Chapter 6.

As highlighted in 3.1, the 'events' being considered have already occurred (that is, graduate attribute development), so Mahoney's (2003) recommended outcomes-based explanation offers an appropriate means of learning about the presence of generative mechanisms and their transfactual conditions.

Given the aim of this research is to determine the factors that may enable graduate attribute development, it is of critical importance to establish a causal link between student, educator, learning environment and student-student based factors and altered student behaviour, being graduate attribute development. It is proposed that a combination of student, educator, learning environment and student-student factors that are cast as generative mechanisms, and under specific conditions, have the power to produce student change enabling graduate attribute development.

As will be further discussed in Chapter 4, Bennett and George (2003) suggest that generative mechanisms are unobservable social, physical, [or] psychological

processes that under specific conditions have the potential to transfer ‘information’ to other entities (that is students in the context of this research). The inference drawn is that a number of factors, independent of the actions of most students observed, were acting to ‘favour’ certain students’ development of graduate attributes under particular conditions. Such inference is consistent with the nature of the research method to be explained in Chapter 4.

A major challenge in accepting the idea of what are generative mechanisms is accepting that while they may shape certain outcomes, they may also be shaped by other outcomes (Jones 2009b). Either way, ‘the exact course of events will depend on the relative strength of the different mechanisms at work’ (Elster 1998, pp. 60–61). Therefore it is considered paramount that specific research methods are employed to gain a careful appreciation of temporal and contextual factors that together form contingent (or transfactual conditions) under which generative mechanisms activate their tendencies to influence contingently related objects (Tsoukas 1989). Connecting the notion of graduate attribute development to the concept of generative mechanisms requires:

‘the construction of an explanation for... some identified phenomenon [and] will involve the building of a model, utilizing such cognitive material and operating under the control of something like a logic of analogy and metaphor, or a mechanism, which if it were to exist and act in the postulated way would account for the phenomenon in question’ (Bhaskar 1979, p. 15).

The proposed model is presented and explained in Chapter 6 and may serve to contribute to the paucity of literature to explain what combination of factors

related to individual students, their educators and the conditions they interact with and create, will enable graduate attribute development. It is hoped the postulates developed in this chapter will offer a more precise determination of these factors and their interactions.

In summary, 12 postulates have emerged relating to student, educator, learning environment and student-student based factors. As noted at the outset of this chapter, it is proposed that these four factors should not be seen independently of one another. As will be explained in Chapter 6, the proposed generative mechanisms and conditions argued to be unobservable, need to be found via empirical consideration of the related postulates. The degree to which the postulates are supported will provide confidence (or otherwise) in the research proposition.

#### ***3.6.1 An explanatory note***

Throughout this chapter, a range of literatures related to education, higher education, psychological and social science theoretical models and concepts have been used to respond to the challenges identified in Chapters 1 and 2, vis-à-vis determining the presence of generative mechanisms and conditions that have the power to produce change in a student enabling (or suppressing) graduate attribute development. It is only through using this process that one can have confidence that factors enabling (or conversely suppressing) graduate attribute development have been described.

**3.6.2 Researcher reflection: moving back to move forward**

I have come to realise that my journey is somewhat '*The Road Less Traveled*', with reference to M Scott Peck's famous book (1978). His story is a description of the attributes that make for a fulfilled human being, based largely on the author's experiences as a psychiatrist and a person. It feels somewhat ironic that I am drawn to this book's contribution to a body of knowledge on human flourishing and fulfilment. I am hopeful my journey will reconcile some of the issues raised in the literature and in the moments spent conversing with students and educators. I have also come to recognise the value of my experience as a facilitator and educator, and have reconnected and re-examined some learning experiences and what made them happen.

I have become enthusiastic about contributing new combinations of knowledge through which educators may gain access to a more complete understanding of graduate attribute development. Perhaps one of the most significant challenges of this journey to date is the need to reconcile the various ontological perspectives I have encountered engaging with diverse literatures. This engagement has helped me to clarify my understanding of my own personal methodological beliefs and preferences. I will now like to share with you how these methodological beliefs and preferences have been included in this study.

**Chapter 4**

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**Research Methodology**

## Chapter 4: Research Methodology

There is no neutrality. There is only greater or less awareness of one's biases. And if you do not appreciate the force of what you're leaving out, you are not fully in command of what you're doing (Rose 1985, p. 77, in Dwyer & Buckle 2009, p. 55).

### 4.0 INTRODUCTION

This chapter addresses the methodology used within this study and the research approach used to facilitate it. As discussed the research challenge is to describe the combination of factors related to individual students, their educators and the conditions they interact with and create, many of which are largely *invisible* in nature, that are argued to be capable of enabling or suppressing the development of graduate attributes in business education within higher education. Importantly, this study does not aim to test theory or directly extend past theory. The researcher's observations (Chapter 2) and the theoretical descriptions (Chapter 3) available to explain these observations seek to offer a new model of graduate attribute skills development for confirmation or disconfirmation. Therefore a specific epistemology is required through which the researcher's observations and knowledge of the world can be used to develop an explanation of graduate attribute development, while at the same time ensuring such cognitive contribution can be empirically confirmed or disconfirmed. To facilitate a clear and concise discussion of the research method, a more descriptive stance is taken by the researcher in this chapter; hence the researcher's voice sits in the background of the research method and approach.

At present few studies of graduate attribute skills attempt to account for *generative mechanisms* that might be responsible for graduate attribute



skills development, let alone account for the contingent conditions (Tsoukas 1989) under which such mechanisms might increase the potential for graduate attribute development and increase student capability and identity. Furthermore, there are few studies that give specific focus to student perceptions of student, educator and learning factors that may enable or suppress the development of such skills. Smith and Bath argue that: most reports in the literature regarding the educational methods or teaching and learning environments best suited to facilitating the development of graduate attributes, tend to be theoretical or anecdotal, with few in-depth empirically based studies investigating relationships between such variables and specific graduate learning outcomes (2006, p.262).

Given the explicit aims of this study, an epistemology that emphasises theory development is required (Bhaskar 1978; Wollin 1995). This chapter will proceed with a brief overview of the main scientific research paradigms and justification as to the choice of paradigm chosen for this study.

#### **4.1 SYNTHESIS OF MAJOR SCIENTIFIC PARADIGMS AND THEIR ELEMENTS**

Research paradigms are overall conceptual frameworks within which some researchers work. That is, a paradigm is a world view or 'a set of linked assumptions about the world which is shared by a community of scientists investigating the world' (Deshpande 1983, p. 101). A synthesis of the major paradigms and their elements is provided in Figure 4.1

**FIGURE 4.1: SYNTHESIS OF MAJOR SCIENTIFIC PARADIGMS AND THEIR ELEMENTS:**

Paradigm			
Element	Positivism	Constructivism	Critical Realism
Ontology	Reality is real and apprehensible	Multiple local and specific 'constructed' realities	Reality is 'real' but only imperfectly and probabilistically apprehensible and so triangulation from many sources is required to try and know it
Epistemology	Findings true—researcher is objective by viewing reality through a “one way mirror”	Created findings—researcher is a ‘passionate participant’ within the world being investigated	Findings probably true—researcher is value-aware and needs to triangulate any perceptions he or she is collecting
Common methodologies	Mostly concerns with a testing of a theory. Thus mainly quantitative methods such as surveys, experiments and verification of hypotheses	In-depth unstructured interviews, participant observation, action research, and grounded theory research	Mainly qualitative methods such as case studies and convergent interviews
Note: Essentially, ontology is “reality”, epistemology is the relationship between that reality and the researcher and methodology is the technique used by the researcher to discover that reality.			

Table has adapted material from Healy & Perry 2000, Perry et al. 1999, Guba & Lincoln 1994.

Positivism quantitatively measures independent facts about a single event capable of being understood (Guba & Lincoln 1994; Tsoukas 1989). In other words in the positivist paradigm, the data and its analysis are *value-free* and data do not change because they are being observed; that is, researchers view the world through a ‘one-way mirror’ (Guba & Lincoln 1994, p. 110). Positivism is where many of us live most of the time. The world is real, that chair is solid, and a researcher’s findings are statistically significant. Positivism is the world of science and testing hypotheses. In this world, researchers are objective and strive to minimise sources of bias wherever they can.

However, a positivist paradigm is not always appropriate when approaching social science phenomena which involve humans and their real life experiences, particularly when you want their understanding of a phenomenon. This is because positivists separate themselves from the world they study, while researchers within the two other commonly cited paradigms (shown in Figure 4.1) acknowledge that they have to participate in real-world life (to some extent), so as to better understand and express its emergent properties and features (Healy & Perry 2000).

The basic assumptions guiding the constructivist paradigm are that knowledge is socially constructed by people active in the research process, and that researchers should attempt to understand the complex world of lived experience from the point of view of those who live it (Schwandt 2000). The constructivist paradigm emphasises that research is a product of the values of researchers and cannot be independent of them; hence it is *value-laden*. Constructivists argue that human beings construct their own social realities in relation to one another. Reality is subjective and experiential: that thing over there that looks like a table is actually being used as a chair. A particular construction of reality might be shared with many other people, but other people could construct the same reality in quite different ways. The goal of constructivist research, applied more generally in qualitative research, is building understanding and structuring, as opposed to prediction (Schwandt 2000).

On the other hand, critical realist researchers believe that there is a 'real' world to discover even though it is only imperfectly capable of being understood (Tsoukas

1989). A participant's perceptions are being studied for their own sake in constructivism research but in realism research, these perceptions are being studied because they provide a *window* into a reality beyond those perceptions (Healy & Perry 2000).

The constructivist paradigm assumes a subjective relationship between the researcher and the respondent whereby the researcher becomes immersed in the research through shared knowledge and social interaction (Healy & Perry 2000, p. 123). In contrast realism is neither value-free as in positivism nor value-laden as in constructivism. Realism researchers are *value-aware* (Healy & Perry 2000). That is, realists accept that there is a real world to discover even if it is only imperfectly apprehensible. In other words, a participant's perception is not reality as constructivism would suggest. Rather, a participant's perception for realism is a window to reality through which a picture of reality can be triangulated with other perceptions. These multiple perceptions involve triangulation of several data sources. How maintaining value-awareness through reflexivity is achieved is discussed later in this chapter (Healy & Perry 2000).

Rather than the direct cause and effect paths, as a critical realist, the intention was to discover knowledge of the social world by naming and describing broad, generative mechanisms that operate in the world (Bhaskar 1999). In other words, social phenomena by their nature are fragile, so that causal impacts are not fixed but are contingent upon their environment. So in contrast with positivism and constructivism research, the desire as a realist researcher is to develop a 'family of

answers that cover several contingent contexts and different reflective participants, albeit imperfectly' (Pawson & Tilley 1997, p. 152).

As a meta-theory, critical realism is underpinned by a general systems theory that provides a broad way of thinking and understanding, but allows the construction of specific theories to emerge from the research topic (Danermark et al. 2002, p. 162). Therefore, a meta-theory can be defined as what lies beyond or outside any substantive theory (Fleetwood & Ackroyd 2004). In essence, the most fundamental aim of critical realism is explanation, in other words, it is about answers to the question: '*What causes those events to happen?*' Critical realism combines a philosophical platform with a methodological approach (Sayer 1992; Yeung 1997). The next section describes the critical realist research framework and how it applies to this study

#### **4.2 CONSTRUCTION OF A CRITICAL REALIST RESEARCH FRAMEWORK**

There are a number of differing views and approaches to critical realism (Hunt 2003). This study utilised the approach attributed to Sayer, since his account of critical realist ontology is one of the most detailed and comprehensive and so makes it easier to demonstrate how it can provide both a philosophical justification for case research (as it applies in this study), and a guide to its use in practice (Easton 2010).

Critical realists propose an ontology that assumes that there exists a reality out there independent of observers. Critical realists accept that reality is socially constructed but *not* entirely so. The real world breaks through and sometimes

destroys the complex stories that we create in order to understand and explain the situations we research (Easton 2010, p. 120). The following sub-sections outline the elements of critical realist theory according to Sayer (1992).

#### **4.2.1 Objects/Entities and Structures**

Objects or more generally, entities, provide the basic theoretical building blocks for critical realism explanation and can include such things as people, relationships, and attitudes. They can be human, social or material, complex or simple, structured or unstructured. In the context of this study, objects are considered to be students enrolled in 2nd or 3rd year BMA (Management) and BLD (Australian Innovation Centre) units with The Tasmanian School of Business and Economics (TSBE) in 2014. The participants were chosen primarily for four reasons. First, students were enrolled in units offering different modes of delivery in the TSBE. Second, the units were offered by a number of different educators who employ traditional, intensive and experiential delivery methods. Third, as a researcher my interest lies in the development of graduate attributes particularly as students progress through their 2<sup>nd</sup> and 3<sup>rd</sup> year of study. Fourth, the students were chosen because of ease of access to them within the TSBE and BLD units where I am employed as a Lecturer in Management, and finally to enable an identification of the extent of diversity in the student cohort perceived to exist.

In critical realism, the term 'structure' refers to the way an 'object' (student) is constituted or, according to Sayer, structure is 'sets of internally related objects or practices' (1992, p. 92). Objects are, or are part of, structures. Structure suggests a

set of internally related elements whose causal powers, when combined are emergent from those of their constituents (Sayer 2000). A social object, such as a student, is identified as having certain 'deep structures' or deep characteristics which can be either diachronic or synchronic and independent of one another. Diachronic characteristics change or develop over time. For example, a student's motivation to learn, level of self-confidence, ability to make mistakes and recover, level of maturity, or self-authorship may change or develop as a result of exposure to an educator's teaching philosophy or the type of learning environment to which a student is exposed (Baxter Magolda, 1998; 2004). Synchronic characteristics are relatively stable or lasting over time, for example a student's personality (Lizzio et al. 2002; Megginson 1994).

By virtue of its structure, any object has certain 'causal powers' (Neergaard & Uihøi 2007; Sayer 2000). These are the things that an object is able to do, or more broadly its 'potentials, capacities or abilities to act in certain ways and/or to facilitate various activities and developments' (Lawson 1997, p. 21). According to Sayer (2002) causal powers refer to the inherent potential or abilities and liabilities or limitations of objects. In this study, causal powers may include factors such as the extent to which support strategies are incorporated in the teaching and learning environment that foster new student behaviours being demonstrated, or the extent the learning environment focuses on deep, self-directed learning. Conversely, it appears that liabilities such as a perceived student workload, student

procrastination, a student's inability to concentrate, or existential factors such as fear of 'losing face' may act as suppressors to graduate attribute development.

#### **4.2.2 Causal powers and liabilities**

As noted in 4.2.1, objects/entities have causal powers and liabilities. Causality is a subtle and disputed concept which Sayer attempts to capture by a process of interpolation using what he describes as a pragmatic account of causality (Easton 2010). Sayer argues that to ask for the cause of something is to ask:

'What makes it happen?

What produces,... creates or determines it... what enables or leads it?' (Sayer 1992, p. 104).

Sayer also argues that particular interpretations of causality can only be justified in terms of their compatibility with our most reliable beliefs. As a research I must have reason to believe that objects we study have powers or liabilities to cause events to occur. As stated by Easton (2010, p. 120) when referring to causes, 'They make things happen'. By way of example, it is possible that reflexivity has the power to change a student's habits of thought towards problem-solving skills, if the condition of formative and summative example is present in the learning environment. The benefit of this conceptualisation is that it focuses attention on three key questions: *What are the entities that define our research field? What are their relationships and what are their causal powers and liabilities?*



#### **4.2.3 Events**

Events or outcomes are what critical realists investigate, that is the external and visible behaviours of people and things as they occur or as they have happened. In the context of this study the investigation seeks to determine if graduate attributes have been developed by students (specifically communication, problem-solving and social responsibility skills); if there was no development or partial development. It is important to note though that most social science research methods create data that are reported rather than directly observed. Descriptions of events that occur during the development of graduate attributes are rarely experienced at first hand or recorded in a way that is close to the event (Easton 2010).

#### **4.2.4 Necessary and contingent relations**

Critical realists argue that there are two kinds of relationships among objects/entities; necessary and contingent. As Sayer writes, 'the relation between a slave and a master is necessary, in that what the object is dependent on is its relation to the other; a person cannot be a slave without a master and vice versa' (Sayer 1992, p. 89). It is argued then that students, educators and the learning environment have a necessary relationship in the development of graduate attributes. According to Easton (2010, p. 121) 'the relation between entities and the events they cause will usually be a rich and varied one'. A contingent relation occurs when it is neither necessary nor impossible that they stand in any particular relation (Sayer 1992, p. 89). Simply, this distinction recognises that entities can have some relations (necessary) that will affect one another and some (contingent) that may affect one another.

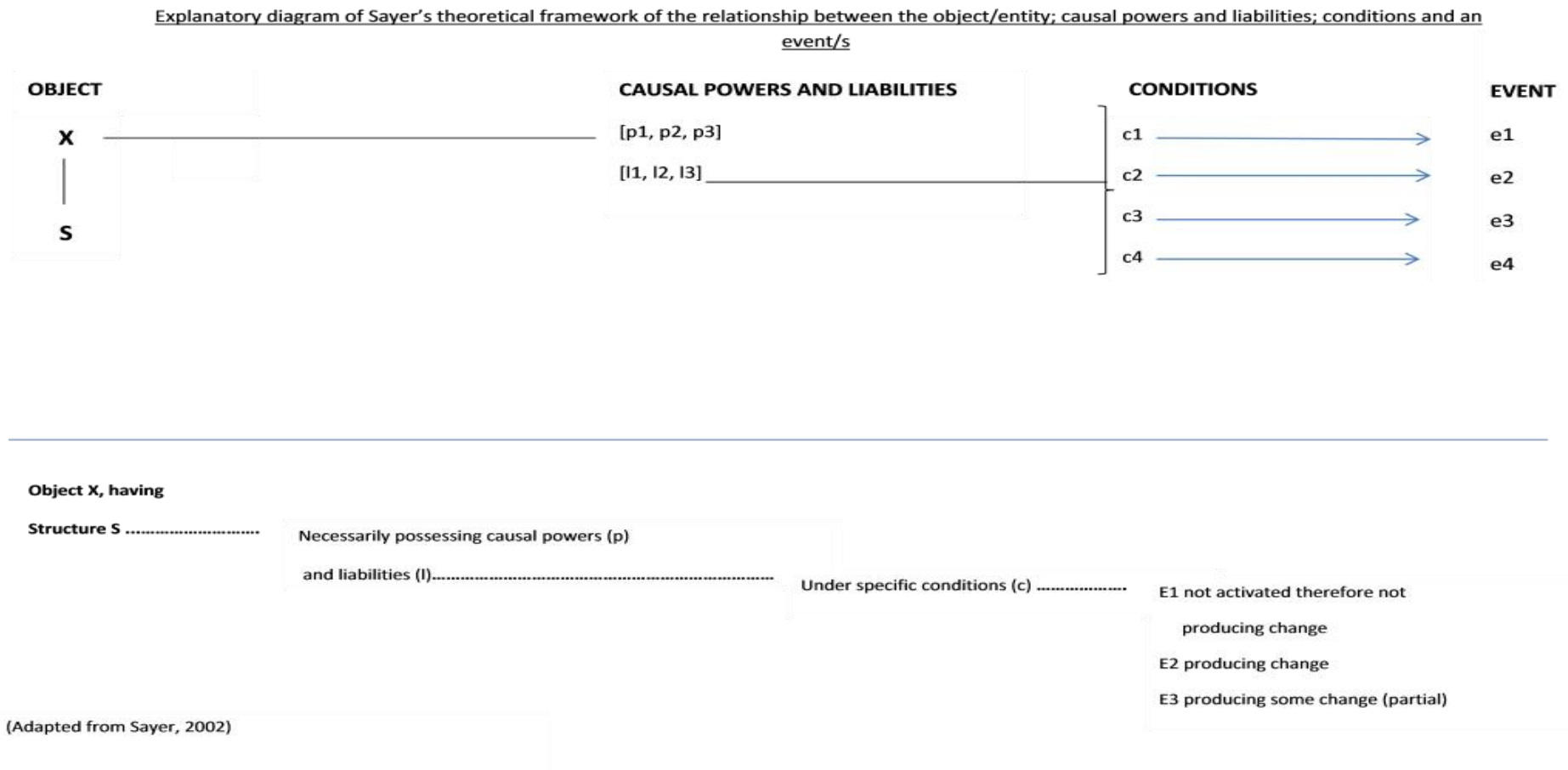
#### **4.2.5 The structure of causal explanation**

The most fundamental aim of critical realism is explanation and answers to the question: 'What caused those events to happen?' In Figure 4.2 causal explanation is structured in terms of the relationships among the concepts discussed so far. This is a formal statement of the critical realist structure of explanation. Less formally a very simple explanation demonstrates the basic form that such an explanation can take in the context of this study:

A student (object) having specific structures, through the activation of causal powers (support mechanisms to lock in specific behaviours) under specific conditions, can result in an event occurring. In this study the event is the development/partial/non-development of graduate attributes.

In practice, formal explanations of the critical realist structure of explanation will not be normally be possible due to the complexity of real world behaviour, but they do provide a useful framework to guide researchers. However, 'critical realists argue that there should always be competing explanations since different interpretations of the data are necessary to ensure that the best, current interpretation is made' (Easton 2010, p. 122). The figure 4.2 is the structure of causal explanation according to Sayer.

FIGURE 4.2 THE STRUCTURE OF CAUSAL EXPLANATION



#### **4.2.6 Causal Mechanisms and Conditions**

Critical realists also make use of the term 'mechanisms' when referring to the ways that the causal powers of an object are exercised. A mechanism is a tool that can be used to promote change or maintain a structure (Groff 2000), and can also be described as a tool that is *unobservable* and exists independently and has the potential to cause an event, under certain structures and conditions (Sayer 2000).

These mechanisms are sometimes described as 'generative' in the sense that they can give rise to concrete phenomena, such as in this study an event that a student might experience. However, activation of causal powers is not automatic, since it depends on the presence of other conditions. Hence as Sayer has noted, 'a particular mechanism can produce completely different actions at different times, and inversely, the same event can have completely different causes' (2000, p. 58). For example two students might have similar capacities to develop specific graduate attributes, yet due to differing conditions (for example social relations that exist between the student and educator), only one of them might realise this development. Another implication is that an event, being the development of graduate attributes, can be the product of any entirely different pattern of causes. Distinguishing these 'contingent' relationships between mechanisms is central to critical realism's view of causation.

#### **4.3 JUSTIFICATION OF THE CRITICAL REALIST PARADIGM**

The nature of the research task is both complex and challenging. In essence, this study attempts to develop a plausible and valid explanation of past events that

relate to the operation (and/or suppression) of a generative mechanism/s that is not directly observable by the researcher but assumed to positively influence the development of graduate attributes. Mahoney (2003) argues that given that the explanation to be developed relates to an outcome that has already occurred (and therefore cannot be tested); the challenge is to develop a set of testable postulates to tease out the presence of these unobservable mechanisms.

In accordance with the nature of the research study, an epistemology drawn from the realist paradigm has been used (Bhaskar 1975). The critical realist paradigm is in line with the researcher's ontological view that the world 'consists of abstract things that are born of people's minds but exist independently of any one person' (Healy & Perry 2000, p. 120). Therefore it is not the researcher's perceptions that are explicitly the focus of the research, but rather *the need to access a reality that lies beyond the researcher's perceptions* (Stake 1995). This is important given the primary research objective of furthering an account of generative mechanisms, that allows for the ascribing of (causal) power or potentiality under a given set of contingent conditions, especially when it is accepted that generative mechanisms 'may either be dormant for a while, or they may be counteracted by opposing mechanisms and lead to no events' (Tsoukas 1989, p. 553).

In order to access this reality attention must be given to Bhaskar's three domains of enquiry (1975). Bhaskar has suggested that critical realism has a stratified rather than flat ontology and this has major epistemological implications (Bhaskar 1978;

Bygstad & Munkvold 2011). The strata/domains/levels are Empirical, Actual and the Real as shown in figure 4.3 below:

**FIGURE 4.3: BHASKAR'S THREE OVERLAPPING DOMAINS OF REALITY**

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms	√		
Events	√	√	
Experiences	√	√	√

Source: Bhaskar (1975).

First, there is the Real domain where generative mechanisms exist independently with a potential to cause events under contingent conditions. Second, there is the Actual domain where observed events or patterns occur whether or not they are experienced. Third, there is the Empirical domain where the observer experiences the events. So the aim for the researcher is 'to develop real knowledge of the world by naming and describing the generative mechanisms that result in the events that may be observed' (Wollin 1995, p. 80).

Although events occur in the Actual domain they may be not observed or may be understood quite differently by observers (Easton 2010). There is a process of interpretation that intervenes between the Empirical and Actual domains. Events occur as a result of mechanisms that operate in the Real domain. It is not the case that the Real or Actual cannot be observed, but simply that they may not always be *capable* of being observed. As researchers we see just the tip of an iceberg but that doesn't mean that the invisible three-quarters is not there or is unconnected to what we see (Easton 2010).

Of the three strata of reality, the domain of the Real is the greatest and encompasses both the domains of the Actual and the Empirical (Bhaskar 1978). The events/experiences in the domain of the Actual emerge from the domain of the Real through causal powers and generative mechanisms at play in the domain of the Real. This *emergence* is a very important concept in critical realism and will be explained later in the chapter.

When Elder-Vass investigates the 'basis of stratification [of ontology] and its implications for the three domains of the Empirical, Actual and Real' (2007, p. 16) he makes the point that each domain is a sub-set of the other. This means there are relational ties between the three domains, that is, they are not separate entities. Together they represent one moment, not three separate moments. This means that as 'I' experience an actual event on the empirical level (I experience what actually happened) it also exists at the real level from which it emerged (what really happened).

#### **4.4 THE RELATIONSHIP BETWEEN EPISTEMOLOGY AND ONTOLOGY IN CRITICAL REALISM AND THE EPISTEMIC FALLACY [KNOWLEDGE MISCONCEPTION]**

In critical realism ontology 'being' is distinct from epistemology 'knowing'. Critical realism makes the strong point that being and knowing are not conflated in any manner; ontology is not absorbed by epistemology and ontology cannot be reduced to epistemology (Hartwig 2007, p. 174). Therefore 'being' does not equate with 'knowing' and being cannot be reduced to knowing. The conflation of ontology and epistemology is called the epistemic fallacy in critical realism, and as noted by

Bhaskar (1978), is often a common error in postmodernist thinking. To put it simply, when questions about being (ontology) are answered only in terms of our knowledge of being, this is the epistemic fallacy.

However, because knowledge and the material world are different it does not mean that there can be no relationship between them (Sayer 1992, p. 68). As critical realism sees knowledge as a social product of social activity, so human beings have to exist prior to knowledge being constructed about 'being' (ontology). From this it is clear that being (ontology) always exists prior to knowledge and is greater than epistemology (knowledge) (Sayer 1992).

#### **4.5 THE CONCEPT OF EMERGENCE IN CRITICAL REALISM**

In critical realist ontology, the Actual emerges from the Real domain while the Empirical domain is where we experience the events of the Actual domain. Each emergence implies some loss or some change (Norrie 2012). The domain of the Actual emerges from the Real and in so doing 'loses' the generative mechanisms and causal powers, and is the domain the Actual events; the Empirical is the domain of experience. The *thing* that emerges is not reducible back to the thing from which is emerged, that is one cannot reduce the Actual to the Real from which the Actual emerges (Bhaskar 2012). In other words, one cannot say that the emergent Actual is the Real. This is seen in Bhaskar's definition of emergence:

A relationship between two terms such that one term diachronically over time or perhaps synchronically at one moment arises out of the other, but is capable of reacting back on the first and is in any event causally and taxonomically irreducible to it (Bhaskar 1993, p. 397).



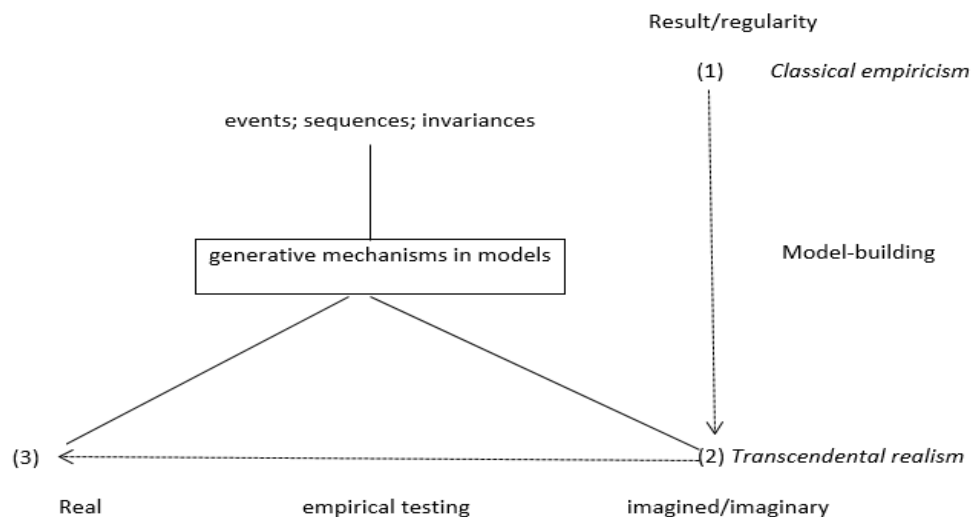
#### 4.6 RESEARCH PROCESS

Modelled on Bhaskar's transcendental realism, this study relies upon the research process of *retroduction* as a means of reasoning. Transcendental realism extends the past notion of Kant's transcendental idealism from what is imagined to an empirical determination of what is (held to be) real (Danermark et al. 2002). This schema is not concerned with the confirmation of relationships between a particular dependent variable and associated independent variable/s. Rather transcendental realism holds that what we observe empirically (within the domain of the Empirical) is produced by events (in the domain of the Actual) that are in turn generated by mechanisms (in the domain of the Real). That is, we are focused upon a *stratified reality* in which knowledge of the empirical is possible, but only *imperfectly* due to our limited access to reality. As argued by Tsoukas, 'whether a particular casual power is exercised, and whether it manifests itself in the actual and/or empirical domain depends on the ambient contingent conditions' (1989, p. 553).

Bhaskar's process of transcendental realism (see figure 4.4) allows the researcher to search for knowledge of underlying causal mechanisms that give rise to events that we wish to understand (1975). Jones (2009b) notes that transcendental realism enables the researcher to imagine (at stage 1) the possibility of a generative process, one 'which if it was to exist and act in the postulated way would account for the phenomenon in question' (Bhaskar 1979, p. 15). Between stages 1 and 2, a knowledge building exercise related to the postulated process is commenced,

building a model using the cognitive capabilities of the researcher, the researcher's past experiences and living momentarily in the world of analogy and metaphor (Jones 2009b, p. 111).

**FIGURE 4.4: BHASKAR'S TRANSCENDENTAL REALISM**




Source: Bhaskar, 1975.

The process of retrodution is employed to allow the researcher to advance from one thing (empirical observation or events) and arrive at something different: a conceptualisation of transfactual conditions or fundamental structures, and proceeds through six stages as illustrated in figure 4.5 (Danermark et al. 2002). The aim is to use the stages iteratively to describe the phenomenon and its components, to examine the components from contrasting perspectives and consider the transfactual conditions that must be present for their collective influence upon the phenomenon under investigation (see Chapter 3). The aim is also to consider the influences of the combined components under particular conditions (see Chapter 5 and 6). However, as noted in 3.1 is *not* intended to

substitute as a traditional review it merely seeks to redescribe the components and, where possible, apply contrasting theoretical frameworks and/or interpretations that may provide new insights through engaging with the extant literature to find support or otherwise of the components of the model and the subsequent postulates.

**FIGURE 4.5: THE PROCESS OF RETRODUCTION**

- |   |                  |
|---|------------------|
| 1. <b>Description:</b> Prepare a description of the phenomenon by making use of the actor's accounts and a variety of sources   | <b>Chapter 2</b> |
| 2. <b>Analytical Resolution:</b> Distinguish various components, aspects or dimensions of the phenomenon and establish (tentative) boundaries to the components studies   | <b>Chapter 2</b> |
| 3. <b>Theoretical Redescription:</b> Interpret and describe the different components applying contrasting theoretical frameworks and interpretations in order to provide new insights (note: this activity is sometimes referred to as 'abduction') | <b>Chapter 3</b> |
| 4. <b>Retroduction:</b> For each component seek to identify basic (fundamental) or 'transfactual' conditions, including structures, causal powers and liabilities, and mechanisms that make the phenomenon possible                                 | <b>Chapter 3</b> |
| 5. <b>Abstract Comparison:</b> Elaborate and estimate the explanatory power or the structures, causal powers, liabilities and mechanisms that have been identified during stages 3 and 4  | <b>Chapter 6</b> |
| 6. <b>Concretisation and Contextualisation:</b> Examine how different structures, causal power, liabilities and mechanisms manifest themselves in concrete situations   | <b>Chapter 6</b> |
- 

In contrast to transcendental idealism where conceptual knowledge development is the central aim, Bhaskar's transcendental realism requires the researcher to confirm (or disconfirm) the existence of the proposed process in reality as well, that is, we must empirically confirm the postulated mechanism, not merely explain its possible existence. In summary, this research requires the researcher to understand and involve different levels of reality to confirm (or disconfirm) the proposed phenomenon under investigation. Transcendental realism and its related

process of retroduction facilitate such a task. Hence, the method adopted is justified on the basis that it is suitable to investigate *invisible processes* assumed to enable or suppress graduate attribute development.

#### **4.7 JUSTIFICATION OF TRANSCENDENTAL REALISM**

Given the presumption of *invisible processes*, assumed to enable or suppress the development of graduate attributes, the research challenge is to investigate *what must exist* for such processes to occur. As noted, when a study seeks to know ‘what qualities must exist for something to be possible?’, and it is known that the required answer/s cannot be directly observed in the domain of the empirical, the process of retroduction is appropriate (Danermark et al. 2002, p. 81). When seeking to generate a theory about as yet undiscovered social process, it is important to avoid inductive and deductive reasoning due to the expectation that neither will provide access to theoretical novelty (Bhaskar & Lawson 1998). It is preferred that the logic of reasoning be based on analogy and metaphor. Blundell (2007) concurs, arguing that when logically deducing particular historical outcomes or events, rather than testing a hypothesis from a set of assumptions, we can better find evidence about fundamental structures whose powers act transfactually (i.e. in the domain of the Real). As noted in 4.7 the process seeks neither to use deductive or inductive logic, but rather seeks (via empirical scrutiny) to move from initial description and abstract analysis to the reconstruction of the basic conditions that make possible the mechanism (Blundell, 2007).

From a broader perspective, critical realism is claimed as valid for the postulation of theory, 'in terms of describing generative mechanisms, for which empirical observations for every possible permutation' are not possible (Wollin 1995, p. 85). Further critical realism makes use of the case study method to overcome any such knowledge limitations by its inherent concern for the 'clarification of structures and their associated generative mechanisms, which are contingently capable of producing the observed phenomena' (Tsoukas 1989, p. 556). This is because case studies employing a critical realist perspective focus upon the 'workings of real social structures and their causal capabilities, irrespective of their individual manifestations in the domain of experience' (Tsoukas 1989, p. 559). As a consequence, when working with stratified realities it is important to rely upon the triangulation of multiples perspectives to discover the real world (Jones 2009; Healy & Perry 2000; Denzin 1970). In summary, critical realism is the most appropriate paradigm to use in this study due to the need to identify, describe and then analyse the structures, generative mechanisms and conditions related to the proposed phenomena of graduate attribute development.

#### **4.8 JUSTIFICATION OF MIXED-METHOD APPROACH**

A critical realist approach encourages the adoption of mixed-method designs to manage the complexity of the phenomena being researched as aspects of the phenomena may go undetected if a single research approach is used (Mingers 2001). A mixed-method design was also chosen in line with recent developments in realist method methodological thinking (Zachariadis et al. 2010; Greenwood &

Terry 2012). Critical realists support that a variety of methods may be required to capture the social events and experiences under investigation (Danermark et al. 2002) with their selection having a firm theoretical basis (Mingers 2001; Lipscomb 2008; Zachariadis et al. 2010). Strong support also exists for the use of mixed-method approach in conjunction with critical realism and retrodution (Lawson 1997; Downward & Mearman 2007; Lipscomb 2008).

The decision to mix specific quantitative (pre-unit and post-unit questionnaire) and qualitative (personal reflections; informal conversations and semi-structured interviews, personal learning statements and focus groups) tools allows the research to be more flexible, integrative and holistic in the investigative techniques when addressing complex research questions (Leech et al. 2010). Furthermore, given the complex and seemingly elusive nature of the generative mechanisms and conditions under investigation, and the fact they challenge explanation by an individual actor, the use of a mixed-method approach is justified (Cresswell 2015; Jones 2009; Tashakkori & Teddie 2003). Danermark et al. (2002, p. 153) argue that achieving critical methodological pluralism (i.e., multiple methods to account for their nature) through mixed-method is desirable, 'but this mix must be governed not only by the research question, but more fundamentally, also by the ontological perspective from which you proceed'.

A key to understanding the process of combining methods within this study is ensuring that the focus remains upon the generative mechanisms that exist and therefore cannot be experienced in the domain of the Empirical (Danermark et al.

2002; Jones 2009). Indeed it is claimed that mixed methods triangulation 'is an operational statement of retroduction' (Downards & Mearman 2007, p. 80). The key is to allow each method to complement the other to ensure the potentialities and limitations of each are enhanced and lessened respectively. The actual way in which the process of mixed-method was employed is discussed in the next section.

#### **4.9 RESEARCH METHOD**

Having considered the underlying ontological and epistemological issues related to the research approach and design used within this study, an overview of the data collection and analysis processes will now be explained. As noted the six-step process of retroduction will be used to frame the discussion (see figure 4.5). Furthermore, that while the study did proceed through these six stages, the order of the process at times was quite *iterative*, which is considered quite normal (Danermark et al. 2002). While each step of the process will be explained in a linear sense, in reality the data collection and analysis process was more complex. Where necessary, justification for the approach undertaken with each step will also be discussed (Jones 2009b).

The first step in the study was to describe the nature of this phenomenon or invariance as outlined in 1.6:

Some students in TSBE develop graduate attributes, specifically communication, problem-solving and social responsibility. Why is it that some students develop these attributes while others do not or only partially develop them?

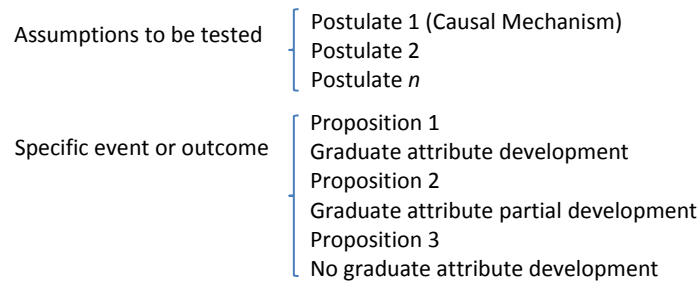
This was done by utilising the researcher's own experiences as an educator, as well as informal conversations with 2nd<sup>2nd</sup> and 3rd<sup>3rd</sup> year students within TSBE, semi-structured interviews with TSBE educators, along with observations of the learning environment. The informal conversations with students who were randomly selected from 2<sup>nd</sup> and 3<sup>rd</sup> TSBE units, served to orientate the researcher to the issues regarding the phenomenon of interest. A brief introduction to the literature on graduate attribute development, student engagement and approaches and strategies for learning, combined with the researcher's experiences, enabled the researcher to identify possible factors thought to potentially enable or suppress the development of graduate attributes.

A case study approach has been employed within this research context, where in this research a case study refers to the experiences of cohorts of 2nd and 3rd year students undertaking different types of units (traditional, intensive, experiential) within the context of TSBE. Hence in exploring the factors that may enable graduate attribute development, the researcher used a student and an educator *lens* to find explanations or otherwise of causal powers and generative mechanisms and conditions. Nieuwenhuis states that case study research is aimed at 'gaining greater insight into and understanding of the dynamics of a situation' (Nieuwenhuis 2007, p. 75). A case study was also chosen as it deals in *in-depth* description and analysis of a phenomenon or social unit (Merriam 2002, p. 8), and allows the researcher to explore a phenomenon in its context using different sources of data (Baxter & Jack 2008). Critical realists also argue that the choice of methods should



be dictated by the nature of the research problem, and in many cases it is suggested that the most effective approach will be to use a combination of quantitative and qualitative methods or techniques (Olsen, 2002 cited in McEvoy & David, 2006). Johnson and Onwuegbuzie (2004) argue that researchers should use whatever methods are needed to obtain the optimum results, even if this involves 'switching between' alternative paradigms. Given the research proposition presented in 1.6 mixed methods using a case study may offer the widest range of views or interpretations and may help deepen the explanation of the phenomenon and generate a model for others to test (Danermark, 2002; McEvoy & Richards, 2006)

The immediate challenge for the researcher was to attempt to explain development, partial-development or no development of outcomes (or events). Outcomes that may be based on unobservable entities and which are also likely to be related to past events, having already occurred, cannot be directly observed by the researcher. Mahoney (2003) also argues for the use of a particular case study method to develop an outcomes-based explanation. The primary reason Mahoney argues for this type of outcomes-based approach is that the events under investigation have already occurred and therefore cannot be tested (i.e. they do not exist in the domain of the Empirical). Figure 4.6 depicts the outcomes-based explanation.

**FIGURE 4.6: THE OUTCOMES-BASED EXPLANATION**

Source: Adapted from Mahoney (2003)

In the critical realist approach, rather than the traditional testing of a research proposition, the researcher is required to investigate a series of postulates empirically: postulates that have been developed in order to capture the various dimensions of the hypothesized explanation of the outcome: where empirical support is gained for the postulates and confidence in the logic of the research proposition is increased (Jones 2009). The stages of the retroduction process as they apply to this study are now explained.

#### **4.9.1 DESCRIPTION AND ANALYTICAL RESOLUTION: STAGES 1 AND 2 OF THE RETRODUCTION PROCESS**

In Stage 1 of the retroduction process, (as outlined in Chapter 2) data considered by the researcher came in many forms from reflections of personal experiences, observations and the informal conversations with students and semi-structured interviews with educators within TSBE.

The researcher engaged in reflections on experiences as an educator within the higher education environment. The aim of these reflections was to critically reflect on what has been learned as an educator to facilitate the development of graduate attributes (specifically communication, problem-solving and social responsibility

skills), and engage in critical inquiry that has the potential to change current beliefs and assumptions about the role the student, educator and learning environment play in graduate attribute development (Hedberg 2009). This process of reflexivity involved thoughtfully considering and critically analysing actions and experiences with the goal of improving professional practice as an educator seeking to develop graduate attributes (Moon 2004).

Informal conversations with students and semi-structured interviews with educators were conducted during and after Semester 2, 2013 and during and after Semesters 2 and 5 in 2013 and 2014. In total 20 informal conversations with students were undertaken. These conversations were then followed by nine semi-structured interviews with educators.

As noted in 4.9 students to participate in an informal conversation came from a variety of TSBE or BLD units. Each informal conversation was conducted for approximately 15 minutes. A description of the graduate attributes under investigation (as provided in the relevant unit outline the student was engaged with) was explained to students prior to commencing the informal conversations. The questions used as a guide for the informal conversations and semi-structured conversations are provided in Appendix 3. The Participant Information Sheet and Consent Form are included in Appendix 4.

The research employed a purposive sampling method, whereby the participants (students) were selected in a systematic way based upon prior knowledge of the

target population and the purpose of the study (Bryman & Bell 2007, p. 500; Babbie 2005) (i.e. 2nd and 3rd year students undertaking BMA or BLD units that are either delivered employing a traditional, intensive or experiential approach).

During the informal conversations, the students were asked to provide an account of their experiences in a specific unit and to comment on the factors that, in their *opinion*, enabled or suppressed the development of the three specific graduate attributes (under investigation) as experienced or observed by the students. The intent of the informal student conversations was to ask 'how' and 'why' questions (Yin 2003) to tease out from each student any underlying causal structures, mechanisms and conditions they perceived impacted on graduate attribute development. These informal interviews also offer an opportunity for appraisal of the testimony of the participants: not checking whether they are telling the truth but 'looking at the processes that shaped their views and assessing the extent to which they may be distorted by ideology' (McEvoy & Richards, 2006 p. 70).

During the informal conversations and semi-structured interviews, notes were taken. These were shown to each participant (student or educator) for verification that the notes were an accurate version of either the student or educator thoughts. This verification was undertaken to also ensure the elimination of any form of researcher bias (Babbie 2005). Feedback from the participants confirmed the validity and reliability of the data gathered, with no participants noting that the analysis in any way distracted from their account. The data collected from participants during this phase was important to building a model of graduate

attribute development and allowed the researcher the opportunity to access a broader range of actors' voices. An example of an informal conversation indicative of students' responses is provided in Appendix 12.

A thematic analysis of the semi-structured interviews with educators was used as a categorizing strategy for qualitative data. The analysis used a 15-point checklist of criteria (Braun & Clarke 2006, p. 96; see Appendix 10).

It helped to move the analysis from a broad reading of the data towards discovering patterns and developing themes. Such a process of 'encoding qualitative information' is explained by Boyatzis (1998, p. vii), 'this may be a list of themes, a complex model with themes, indicators and qualifications that are causally related; or something between these two forms'. The categories arising from the preliminary thematic analysis are further explained in Chapter 5.

The data analysis and development of key themes is most accurately described by referring to Seidel's Noticing, Collecting and Thinking model (Seidel 1998). Seidel advocates acknowledgment of the non-linear process of analyzing qualitative data.

He suggests that when you start thinking about things you start noticing new things in data, then you collect and think about these new things. It is recursive process: one part can take you back to a previous part. For example: When you are applying the collection techniques you start noticing that there are new things to collect. Also it is holographic in that each step in the process contains the entire process. In

other words when you start noticing things you start collecting things mentally and you are thinking about things at the same time.

Acknowledging the work of Seidel, this study uses an iterative approach was used where many of the forms of data were collected and sorted and time was given to thinking about how the various parts might fit together. Hence, comments from educators and students were compared and contrasted with one another. Comments from participants were considered in light of the literature and the researcher's own observations and experiences, until patterns among the patterns emerged.

Having unearthed the first understanding of the perceived individual student, educator and environmental factors, many of which appear to be invisible in nature, and a notion as to the contingent conditions that might accompany their operation, further data was sought to determine the validity of continuing the study's current focus. Yin (2003, p. 47) argues that 'only with such replications would the original finding[s] be considered robust and worthy of continued investigation or interpretation'.

#### **4.9.2 THEORETICAL REDESCRIPTION: STAGE 3 OF THE RETRODUCTION PROCESS**

The aim of the next stage was to examine the relationship between the proposed 'components of the model of graduate attribute development as perceived by students, with the higher education literature and other sources of data to confirm theoretical support for the emerging model. This step would help determine to

what extent the components and their possible causal role in the model might also be better explained using alternative theoretical interpretations.

Of key concern was to adhere to Hodgson's Principle of Consistency (Hodgson 2001) which states that 'explanations in one domain have to be consistent with explanations in another, despite examination of different properties and deployment of different concepts' (2001, p. 90). Hence the first task was to test the support of each component with literature relevant to that component in relation to its assumed role within the proposed model of graduate attribute development. Alternative sources of explanation from broader literature were consulted for the purpose of developing a more consistent understanding of each 'component' in relation to graduate attribute development (Jones 2009). Danermark argues that through this process, 'the original ideas of the objects [i.e., components] of the study are developed when we place them in new contexts of ideas' (2002, p. 110). At this stage, the development of the research proposition emerged and a number of postulates from which to confirm (or disconfirm) their strength or explanatory power.

In total 12 postulates were developed with the first four focusing on the 'student' as a factor in graduate attribute development as follows:

**Postulate 1:**

A student's habit of thought is capable of being altered through frequent and varied opportunities for reflexivity.

**Postulate 2:**

A student's deep approach and strategy to learning may enable graduate attribute under certain conditions.

**Postulate 3:**

A student's likelihood of demonstrating graduate attributes can be explained by the presence of '*The Reasonable Adventurer*' attributes.

**Postulate 4:**

A student's adaptability is influenced by the degree of psychological safety in the learning environment

The next two postulates related to how the role of educator might enable graduate attribute development, as follows:

**Postulate 5:**

An educator's philosophy that offers freedom for students to innovate, make mistakes and recover may support graduate attribute development.

**Postulate 6:**

The use of the 'pedagogical space' can assist in managing student innate differences to support self-efficacy.

The next four postulates related to how the learning environment may impact on graduate attribute development as follows:

**Postulate 7:**

A student's ability to employ self-directed learning strategies may increase in an authentic learning environment.

**Postulate 8:**

A student's ability to show self-authorship may be increased if learning partnerships are formed.



**Postulate 9:**

Assessment criteria and standards based on interpretation of a recognised educational taxonomy, may inform identification and feedback and feedforward and increase self-regulation.

**Postulate 10:**

Appropriately designed assessment that is self-directed, reflective and authentic is an identifiable feature of graduate attribute development.

The final two postulates related to student/student relationships, and were as follows:

**Postulate 11:**

Students can alter or put pressure on the learning environment to continually 'stretch' their capabilities as a result of examining the fitness of their routines in a group context.

**Postulate 12:**

The nature of student collaboration and the type of communal learning activities engaged in, may impact on a student's sense of identity in group learning.

The extent to which support was found (or otherwise) for each of the 12 postulates is discussed in Chapter 5 and the processes used for confirmation/disconfirmation are illustrated are discussed later in this chapter (Triangulation of Research Methods).

**4.9.3 RETRODUCTION: STAGE 4 OF THE RETRODUCTION PROCESS**

The aim of this stage of the retroduction process is to produce knowledge of the mechanisms and contingent conditions assumed to produce the events related to the phenomenon under investigation. Bhaskar states that:

'the construction of an explanation for [i.e., the construction of knowledge] some identified phenomenon will involve the building of a model, utilising such cognitive materials and operating under the control of something like a

logic of analogy of a mechanism, which if it were to exist and act in the postulated way would account for the phenomenon in question' (1979 p. 15).

Hence in both stages 3 and 4 the focus was upon addressing the questions that emerged from the research proposition presented in 1.6:

- For whom will this model of graduate attribute development apply? (For example, will it support those less engaged students?)
- Where will this model occur? (For example, at a unit or individual student level?)
- In what contexts and in what respects could the model be effective? (For example, in traditional, experiential and/or intensive learning delivery?)
- How can educators *realistically* support students to develop graduate attributes?
- Why don't all students develop graduate attribute skills even when it seems appropriate structures, mechanisms and processes are in place?

The answers that emerge, lead to the next stage of the process. The process of finding support for the postulates entailed further quantitative and qualitative data collection in the forms of pre-unit and post-unit questionnaires from 2nd or 3rd year students enrolled in traditional, intensive and/or experiential BMA or BLD units in TSBE; data from personal learning statements (an assessable task in an experiential 3rd year unit, BLD 301) and focus groups.

During this stage of retroduction a pre-unit and post-unit questionnaire used to collect quantitative data. The choice of questions in the questionnaires directly

related to the research proposition and student perceptions offered through informal conversations as well as the semi-structured interviews with educators. It was envisaged that the questionnaires would further help identify and describe the structures, mechanisms and conditions that may enable graduate attribute development. Yin (1994) said that a questionnaire is appropriate when 'a what' question is being asked about a contemporary set of events over which the investigator has little or no control. The questionnaires and instructions for students are shown in Appendices 5, 6 and 7.

This exploratory questionnaire approach is used as a 'search device' for helping to give direction to a topic or to explore a variety of different explanations that interest the researcher (Babbie 2005).

There were two types of questions used in this study: open-ended and pre-coded questions. Pre-coded questions are where the responses were fixed and respondents were expected to choose the option which he or she agreed with most (Sarantakos 1998). There were two types of pre-coded questions that were used in the pre-unit questionnaire:

Single response item

For the single response questions, respondents were only allowed to *tick* one of the alternatives provided. An example of a single response question is shown in Background Information (Appendices 5 and 6) where a respondent needed to circle only one box to indicate their age group.

Scales of increasing strengths

Scales of increasing strengths provide sets of numbers ranging from low to high, from which the respondent was expected to choose one.

The pre-unit questionnaire had objectives defined in three categories, being students':

- 1) attitudes toward study and usual way of studying;
- 2) understanding of graduate attributes (under investigation) before undertaking a unit; and
- 3) perceived ability to demonstrate the graduate attributes (under investigation).

The Revised Two Factor Study Process Questionnaire (R-SPQ-2F) was used for Category 1, (Part 2) of the pre-unit questionnaire to identify student approaches and strategies to learning (Biggs, Kember & Leung 2001). The R-SPQ-2F contains 20 items and was answered on a 5-point Likert scale as follows:

- 1) this item is never or only rarely true of me
- 2) this item is sometimes true of me
- 3) this item is true of me about half the time
- 4) this item is frequently true of me
- 5) this item is always or almost always true of me.

Attitudes towards study were presented as statements. Respondents were asked to indicate, using the Likert scale, the extent to which they agree/disagree overall with each statement.

Part C of the pre-unit questionnaire (Category 2) consisted of eight questions asking how students became aware of graduate attributes; their perceived importance;

links between graduate attributes and assessment; and their perceived ability to demonstrate each of the graduate attributes under investigation. Part C also attempted to identify students' perceived ability to demonstrate each of the graduate attributes under investigation.

The post-unit questionnaire had objectives defined in three categories, being students':

- 1) perceived 'value' of the graduate attributes (under investigation);
- 2) perception of the factors that enabled or suppressed graduate attribute development; and
- 3) perceived ability to demonstrate the graduate attributes (under investigation).

The pre-unit and post-unit questionnaires were completed by a total of 153 students during Semesters 1, 2 and Winter School in TSBE during 2014.

The cross-sectional independent variables of age, gender, first language, level of student prior academic achievement, enrolment status (full-time or part-time) and employment status were chosen to see if they impact on the development of graduate attributes. This data was also easy to collect and measure and it enabled the researcher to identify the 'diversity' in TSBE and BLD units rather than merely making assumptions. The options given to participants regarding age were < 20; 20–29; 30–39; 40–49 and 50+. The age categories were recoded into two categories as there were no students in the sample in the 50+ category and a small number of students in the 40–49 category (pre-unit) and in the post-unit questionnaire there were no students in the 40–49 or 50+ age groups. The options

given to respondents regarding language were 'Is English your first language? Yes or No'. The options given to respondents regarding qualifications were 'Is this your first tertiary qualification? Yes or No'. If not, please list your previous qualifications'. The options given regarding employment were 'Are you currently employed? Yes or No'. If yes approximately how many hours do you work each week? >40; <40 but >30; <30 but >20; <20 but > 10; < 10/week; Don't work'.

Respondents were asked to include the same unique identifying code on their completed pre-unit (Time 1) and post-unit (Time 2) questionnaires. This code comprised the first three letters of their mother's maiden name and the last three numbers of their contact telephone number. The code was confidential to the respondent and not known to the researcher. This code was used to match data sets gathered pre-unit and post-unit.

An important factor to consider when using questionnaires is validity and relates to the soundness of the actual data gained from respondents (Dwyer 1999). Trial questionnaires help to minimise errors before the actual questionnaire takes place. The pre-unit and post-unit questionnaires were examined during a trial for clarity and length. Trialling a questionnaire on a small group of subjects is an essential phase so the questionnaires were checked and trialled by six (6) 2nd or 3rd year students within TSBE who responded to an email request from the researcher. They were chosen on the basis of their representativeness of the student populations in TSBE BMA and BLD units. The feedback resulted in modification to the language used in the pre-unit and post-unit questionnaire to accommodate the

proportion of students in the research cohort who had English as a second language. The trial group also provided an estimate of the time needed to complete the questionnaire and were asked to comment on any perceived ambiguities in each question and to recommend additional questions. Feedback suggested each questionnaire took approximately 15 minutes to complete.

Another important consideration when conducting a questionnaire is content validity which was also achieved through the use of the trial questionnaire. Content validity is concerned with how accurately the questions asked elicit the information sought (Babbie 2005). Therefore, the trial process was likely to ensure that any ambiguous and double-barrelled questions could be avoided. This process was necessary to yield as much information as possible without confusing the respondents with poorly structured questions. The Participant Information sheet (Appendix 4), was included with the questionnaire in order to give respondents an overview of the study. The feedback received confirmed that only minor alterations were needed.

A possible problem when conducting a questionnaire is a low response rate. Limited responses from a sampled population may be due to two reasons. One is that the respondents cannot be contacted; the other is that respondents may not have attended the lectures when the questionnaires were administered, or if they were attending, did not participate in the research. The researcher undertook several precautionary measures to ensure a valid response rate. The unit coordinators of BMA and BLD units were asked prior to the beginning of semester if

they would invite students in their unit to participate in the research. Notification of the research was also placed on each unit's MyLO site (the UTAS Student Learning Management System: My Learning Online). Students were advised by their unit coordinator and again on MyLO when the questionnaires would be undertaken. Permission to conduct the questionnaires during lecture time was obtained from the unit coordinator. During questionnaire completion, unit coordinators were not in the room. Participation in this research study was fully voluntary.

Questionnaire data was analysed using Descriptive Statistics, Independent T-Tests, Factor Analysis and Analysis of Variance (ANOVA). Descriptive statistics involves the collection, presentation and characterisation of a set of data concerning a population often based only on a sample result (Berenson & Levine 1992). A key advantage of descriptive statistics is that they make a mass of research material easier to interpret. By reducing a large set of data into a few statistics or tables, the results of the research are likely to be more readily understood. Independent-Samples T-Tests have been used in this research study to compare the mean score of continuous variables, including teaching and assessment methods employed in the unit for two different groups of subjects (Pallant 2013 p. 247). These results were coded using the PASW (Predictive Analytics Software) Statistics package Version 18.0.

The Independent Samples T-Test was specifically used to tell whether males and females differ significantly in terms of their degree of confidence in developing the



specified graduate attributes in the unit being investigated and as a result of completing the unit. In statistical terms the test is of the probability that the two sets of scores (for example gender) came from the same population (Pallant 2013). Exploratory Factor Analysis was used to gather information about the inter-relationships among the variables (Pallant 2013).

The thematic analysis of student responses on their perceptions of factors enabling and/or suppressing graduate attribute development, collected in the pre-unit and post-unit questionnaire, is presented in Appendix 10.

The pre-unit and post-unit questionnaires were followed by further data collection by way of five focus groups with BMA and BLD students during 2014. A focus group is a useful facilitated discussion using open-ended questions (Leung & Savithiri 2009), allowing the researcher to guide the conversation back to the question or move with the flow of the discussion. Billson (2006, p. 3) adds that the cross-fertilisation of ideas happening in a well-facilitated focus group, may generate insights that would not otherwise occur without the group interaction. Leung and Savithiri make an interesting point that focus group participants may 'build on each other's ideas by "piggybacking" ' (2009, p. 219). This proved to be true in some instances in the focus groups conducted for this study. In other instances, a number of students would show agreement or support (by nodding) when an individual participant responded to a question.

The experience in facilitating group discussions assisted in ensuring that all focus group participants were heard, encouraged and given the opportunity to speak. However, it is important to also recognise the key challenges in facilitating a successful focus group, for example large amounts of data are generated and transcribed verbatim that may be difficult to analyse (Leung & Savithiri 2009). Billson (2006, p. 6) refers to large amounts of data produced by focus groups as 'mountains of words'. Furthermore, difficulties within the focus group may arise from cultural differences among participants (Billson 2006, p. 9). These factors are important to consider within the TSBE context which has a large number of international students.

The five focus groups comprised both domestic and international students of various ages, genders, with various pre-existing qualifications and employment experience. If there was a difficulty with an English question, this was paraphrased to ensure clarity of understanding. It was found in all focus groups, that the most important moment in the discussion was when one participant made he-/she vulnerable and took a risk in saying out loud what others in the group were also thinking (as usually transpired by agreement as confirmation following one participant's statement).

The focus group transcriptions were undertaken by Pacific Transcription Services and then filtered and formatted by the researcher (see Appendix 9). The filtering and formatting process allowed immersion in the data and further clarity of the student, educator and environment factors that would form key aspects of the

model. Gibson and Brown make an interesting point regarding a transcription stating that it 'is best thought of as an approach to generating analytic focus, of pointing to particular features of data and of filtering out less important ones' (2009, p. 111). This statement resonated and was a reminder of the need to be true and particularly mindful of the way information was filtered, and how such filtering could influence the study.

An additional opportunity to gather data was provided through anonymised Personal Learning Statements from students who participated in a BLD unit (BLD 301). A summary of the key themes from analysis of these Personal Learning Statements is provided in Appendix 7.

#### **4.9.4 ABSTRACT COMPARISON: STAGE 5 OF THE RETRODUCTION PROCESS**

The aim of this stage is to discuss the explanatory power of the model under development in relation to its structures, mechanisms and conditions. The goal being to unite the theoretical underpinnings of the explanation developed, by determining the priority and explanatory factors through which the transfactual conditions related to the model can be reconciled to operation (and/or non-operation). During this stage of retroduction the initial research proposition (see 1.6) and the subsequent questions that emerged from the initial research proposition (see 4.9.3) were front of mind in determining the explanatory power of the model.

**4.9.5 CONCRETISATION AND CONTEXTUALISATION: STAGE 6 OF THE RETRODUCTION PROCESS**

The process and interpretation of the meaning of any particular mechanism that is identified is offered through this process as is a deeper explanation of the events (that is graduate attribute development) under investigation. Importantly, whether or not contingent conditions ‘occur by accident or are structurally reliable’ should be determined at this stage (Jones 2009b, p. 134). Therefore this stage of the process seeks to understand under what conditions the event relates to concrete situations.

The next section of this chapter discusses the justification for using the process of retroduction, before the final issue of methodological soundness is addressed.

**4.9.6: JUSTIFICATION FOR USING THE RETRODUCTION PROCESS**

The purpose of using the process of retroduction is four-fold. First, it ensures the various combinations of mixed-method tools can be utilised in such a way that the expected complexity associated with the assumed development of graduate attributes can be identified. 2nd, it avoids falling into the trap of ‘misplaced concreteness’ where, Danermark argues, an over-reliance upon specialised knowledge may distance the researcher from the reality of the mechanism under investigation (2002). 3rd, it facilitates the inclusion of other theoretical ideas through which a more complex understanding of the assumed mechanism may be achieved (Jones 2009). Fourth, despite the desirable need for degrees of statistical rigour, the research methods must allow the researcher to connect to the world of

the practitioner in such a manner that the *real life* aspects of the assumed mechanism can be determined via reciprocal communications.

In summary, the chosen method provides the researcher with access to various levels of ontological and epistemological reality through which new knowledge about the assumed mechanisms are possible. Such new knowledge is possible through the combining of other discrete bodies of knowledge (such as facilitating student engagement) in ways that introduce and/or generate new approaches and methods. Importantly the process of retroduction provides the means for researcher's observations (Chapter 2) to be creatively combined in a model building process (Chapter 3) from which to: 1) postulate plausible generative mechanisms and contingent conditions, and then 2) determine if these mechanisms are real (or imaginary) via empirical scrutiny (Chapters 5 and 6). Thus, in comparison to other scientific paradigms (e.g. positivism and constructivism), the researcher's ontological preferences and the demands of investigating an assumed mechanism, which may not exist in the domain of the empirical, can all be accommodated.

#### **4.10: METHODOLOGICAL SOUNDNESS**

Six criteria are proposed for determining the validity and reliability of research within the critical realist paradigm (Healy & Perry 2000). They draw on the ontological, epistemological and methodological elements of the paradigm and are: 1) ontological appropriateness; 2) contingent validity; 3) triangulation; 4) methodological trustworthiness; 5) analytic generalisation; and 6) construct validity. There is strong support in the literature for using these criteria (Golafshani

2003; Alam 2005). The following section proceeds with a defence of the realist paradigm used within this study.

#### **4.10.1 ONTOLOGICAL APPROPRIATENESS**

Given the primary objective of the study is to investigate the presence of a proposed generative mechanism and to account for the contingent conditions associated with their operation and/or suppression, the world being investigated can be categorised as being Popper's world (McGee 1975) in which the world 'consists of abstract things that are born of people's minds but exist independently of any one person' (Healy & Perry 2000, p. 120). Therefore, it is not the researcher's perceptions that are the explicit focus of the research, but rather their ability to access a reality that lies beyond the researcher's perceptions (Stake 1995). As such, the ontological position adopted in this study (that operates in Popper's world 3 which is related to abstract things born from people's minds but which exist independent of any one person) is preferred to positivism (that operates in Popper's world 1 and requires a more objective approach containing material things), and/or constructivism (that operates in Popper's world 2 using more subjective analysis being born from people's minds). Transcendental realism is used to ensure that the potential operation (and/or suppression) of the generative mechanism is not only born from the researcher's mind (transcendental realism), but is also empirically confirmed or disconfirmed (Jones 2009). The ontological position adopted is therefore appropriate.

#### **4.10.2 CONTINGENT VALIDITY**

As already highlighted the primary challenge of this research is that the events under consideration have already occurred and must be subject to an outcomes-based explanation (Mahoney 2003). This is 'unlike the laboratory where the conditions for effective triggering can be created, no such opportunity exists in the social world' (Pawson & Tilley 1997, p. 150). So the issue is to identify the contingent conditions that might relate to the mechanisms under investigation. Through the identification of student, educator and learning environment factors that may enable/suppress graduate attributes development, this research will achieve contingent validity.

#### **4.10.3 TRIANGULATION**

It has been argued that 'realism relies upon multiple perceptions about a single reality' to access a window of reality that is triangulated (Healy & Perry 2000, p. 123). Four types of triangulation are noted by Denzin and Lincoln (1994), those being data triangulation, investigator triangulation, theoretical triangulation and methodological triangulation. As previously noted this study data has been gathered and utilised from the researcher's own experiences and observations; informal conversations with students and semi-structured interviews with educators; pre-unit and post-unit questionnaires; higher education literature, personal learning statements and focus groups. The variety of data-gathering strategies utilised provide evidence of data triangulation (see Figure 4.7). Care has been taken to consult with colleagues within TSBE as the proposed model of

graduate skills development evolved; therefore a degree of investigator triangulation has been achieved.

The process of retroduction requires the researcher to engage in the process of theoretical triangulation (Jones 2009). Theoretical triangulation involves using multiple theoretical perspectives to examine and interpret the data. Within this study, aspects of the process of graduate attribute development have been considered in light of student engagement; curriculum development; educators' conceptions of graduate attribute development; student perception of the learning environment and approaches to learning; and the ontology of the learning environment. Consequently, it is also claimed that strong methodological triangulation has been achieved within this study.



**FIGURE 4.7: TRIANGULATION THROUGH MIXED-METHODS**

	<b>Quantitative Data</b>	<b>Qualitative Data</b>	<b>Research Method</b>
Postulate 1	Post-unit questionnaire	Researcher's personal reflections Informal educator and student conversations Focus groups	Noticing-Collecting-Thinking (NCT) Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 2	Pre-unit and post-unit questionnaire	Informal educator and student interviews	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 3	Post-unit questionnaire	Informal educator and student interviews Focus groups Personal Learning Statements	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 4	Post-unit questionnaire	Informal conversations with educators and students Focus groups	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 5	Post-unit questionnaire	Informal conversations with educators and students Focus groups	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 6	Post-unit questionnaire	Informal conversations with educators and students Focus groups	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 7	Post-unit questionnaire	Informal conversations with educators and students Focus groups Personal Learning Statements	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 8	Post-unit questionnaire	Informal conversations with educators and students	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 9	Post-unit questionnaire	Informal conversations with educators and students	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 10	Post-unit questionnaire	Informal conversations with educators and students Focus group	NCT Thematic analysis Paired t-test ANOVA Factor Analysis
Postulate 11	Post-unit questionnaire	Informal conversations with educators and students	NCT Thematic analysis Paired t-test

		Focus group Personal Learning Statements	ANOVA Factor Analysis
Postulate 12	Post-unit questionnaire	Personal Learning Statements Focus groups	NCT Thematic analysis Paired t-test ANOVA Factor Analysis

#### 4.10.4 METHODOLOGICAL TRUSTWORTHINESS

Given the level of triangulation used throughout this study, a high reliability has been maintained. In addition to the extent of triangulation of all forms of data used, each form of data collection has been conducted in a uniform manner, therefore further increasing the reliability of data collection.

#### 4.10.5 ANALYTIC GENERALISATION

As the underlying logic of realism is theory-building rather than theory testing (Healy and Perry, 2000), the emphasis is on *analytical generalization*, rather than on empirical generalization. Therefore, rather than aiming to achieve generalizable results, the findings of this study merely aim to ascertain the key factors that have the potential to enable graduate attribute development within the specific context of 2<sup>nd</sup> and 3<sup>rd</sup> year students undertaking units with TSBE, and create interest in this area for more generalized research.

#### 4.10.6 CONSTRUCT VALIDITY

Within the context of case study research, Yin suggests that construct validity is contentious (Yin 2003). Yin claims that the use of subjective judgements and weak operational measures are frequently used as reasons to lessen claims of construct

in case study research. Within this study, the fear of subjective judgements has been nullified by the use of triangulation to ensure multiple forms of data are used in confirming the researcher's initial ideas as to the factors that may enable or suppress graduate attribute development. However, it is worth noting that while this study has potentially made significant progress towards developing construct validity around the concept of graduate attribute development, at this stage, the outcome of the study is the development of a model that clearly requires empirical testing. Therefore, at this point in time, the model is potentially an emergent theory that may develop greater construct validity in its immediate future development.

#### **4.11 CONCLUSION**

An explanation has been provided of critical realism and its usefulness as an approach to explore the complex interactions between students, educators and the learning environment that may impact on the development of graduate attributes. Critical realism offers a number of advantages to this research: it is ontologically sound; it focuses on causality; it is comprehensive; it provides a clear guide to the position of the researcher; it has implications for analysis and provides insights into the nature of knowledge.

A critical realist perspective can generate rich conceptualisations and deeper understandings of complexity for the development of more sophisticated explanations and more effective solutions (Angus & Clark 2012) and the elements of the critical realism framework offer a strong platform for mixed methods

research. It offers a means to advance understanding of the complex phenomenon, of graduate attribute development (Sayer, 2000, 2002).

Adopting a critical realist perspective allows an exploration of the research questions that align with the researcher's world view that acknowledges the world as structured, differentiated and changing. The researcher's theoretical lens plays an important role in the choice of methods because the underlying belief system of the researcher (ontological assumptions) largely defines the choice of method (methodology) employed (Dobson 2002). Relying solely on qualitative data runs the risk of subscribing greater importance to subjective accounts, whereas relying solely on quantitative accounts may result in the omission of significant non-quantifiable or unexpected mechanisms and conditions.

Critical realism and a mixed-method approach are used to present an alternative way to explore the socio-cultural landscape (Sayer 2000; Bisman 2010). Essentially, the capturing of the views of participants in a number of different ways is important to delve deeply and to address the research proposition, whilst accounting for the researcher's subjectivity. As a reflexive research project this required clear identification, articulation and accounting for a number of influences that shaped the data analysis.

The critical realist study takes into account structures, processes and circumstances that may account for graduate attribute development, and entails investigating outcomes: or the extent or otherwise that graduate attributes are developed.

Qualitative and quantitative data collection can inform our understandings of what is or what is not happening within the learning experience of students. A critical realist perspective facilitates an understanding of what is working, for whom and in what circumstances. It is recognised that all research is informed by the stance of the researcher. My stance is that of a critical realist. Thus, the depth and stratified ontology of critical realism play an important role in the analysis of data. Critical realism also affects my truth and knowledge claims. Any knowledge claim that made by a researcher is fallible. Any truth claim must be regarded within the critical realism as having multiple layers. Recognising that the researcher's assumptions can be influential is important, therefore the researcher's assumptions are explicit so that to increase awareness of them and their influence on my research. Chapter 5 will look at the data analysis and interpretation of data regarding student, educator and learning environment factors that may impact on graduate attribute development, specifically the three attributes under investigation.

## Chapter 5

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### Findings

## Chapter 5: Findings

### 5.0 INTRODUCTION AND OVERVIEW

This chapter presents the results from the data collection process in two parts. First, response rates and variables are discussed. Next explanatory variables are explained and descriptive statistics in relation to the responses to the questionnaire categories are presented. Then the researcher's observations and personal reflections are given, and finally the relationship between responses pre-unit and post-unit and the importance of these results are presented. Initially the chapter takes a descriptive, third person stance however the researcher's voice returns to the writing as the structures, mechanisms and conditions that may enable or suppress graduate attribute developed are elaborated and their explanatory power *estimated* by the researcher through ongoing reflective and observational processes.

The use of the researcher's voice is apropos as part of an examination of how different structures, mechanisms and conditions manifest themselves in different situations. Importantly the extent to which confirmation for each of the 12 postulates was confirmed (or disconfirmed) is presented through both quantitative and qualitative data sources.

### 5.1 DESCRIPTION OF POPULATION AND SAMPLE

There were 201 responses in total from the students enrolled in 2nd or 3rd year BMA or BLD units within TSBE which employed traditional, experiential and/or intensive delivery methods. Of the completed questionnaires, 153 could be

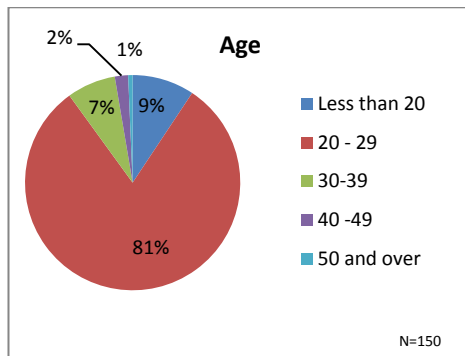
matched to pre-unit and post-unit completion with tracking via a unique identifying code on each questionnaire.

Five focus groups were conducted during 2014 with participants from three BMA units and two BLD units. Twenty three personal Learning statements from students who undertook BLD301 were anonymously and confidentially shared by the students with the research. Therefore access was gained to students with experience in using both traditional, experiential and intensive delivery formats. Appendix 8 is a summary of the key themes distilled from Personal Learning Statements BLD301 (Semester 2 2014) and Appendix 9 the focus group transcripts. Appendix 10 provides a thematic analysis of students' perceptions of factors enabling or suppressing graduate attribute development from all data sources.

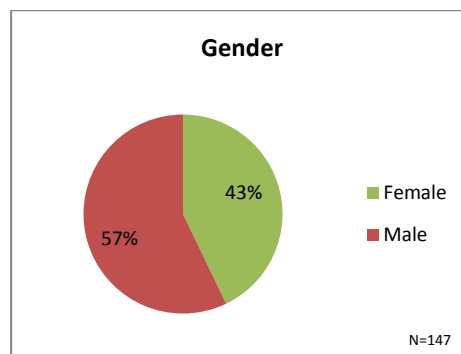
## **5.2 EXPLANATORY VARIABLES: PART 1 PRE-UNIT QUESTIONNAIRE**

In Part 1 of the pre-unit questionnaire the demographic variables investigated were age, gender, if English was the student's first language; if the student had completed a prior qualification; enrolment status; employment status; and if the student had enrolled in other BMA/BLD units during the semester when the questionnaire was completed. Figure 5.1 represents the age, gender, language (whether English is the first language) of students who completed both questionnaires.

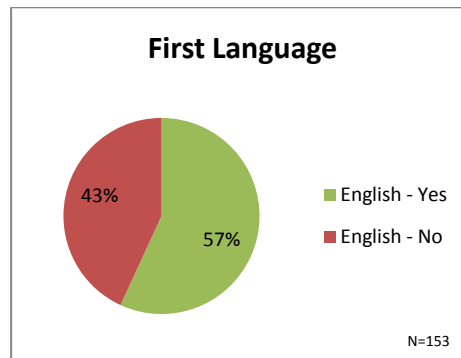


**FIGURE 5.1: DISTRIBUTION OF PRE-UNIT AND POST-UNIT QUESTIONNAIRE RESULTS FOR AGE**

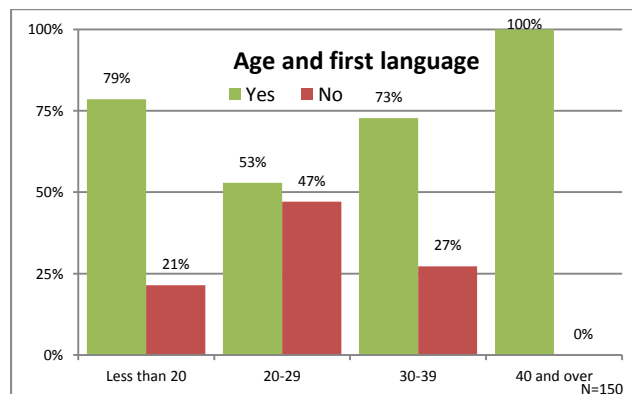
The majority of participants are in the 20–29 age category (81%) and a smaller number in the under 20 age category (9%) and around the same number in the 30–39 age category (7%). Analysis of gender is shown below in Figure 5.2.

**FIGURE 5.2: DISTRIBUTION OF PRE-UNIT AND POST-UNIT QUESTIONNAIRE RESULTS FOR GENDER**

The participants were slightly less females (43%) than males (57%). The next figure shows the distribution of participants by language.

**FIGURE 5.3: DISTRIBUTION OF PRE-UNIT AND POST-UNIT QUESTIONNAIRE RESULTS FOR LANGUAGE**

There were slightly more participants with English as a first language (57%) than students for whom English is not a first language (43%). Figure 5.4 represents participants' relationship between age and language.

**FIGURE 5.4: AGE AND ENGLISH AS A SECOND LANGUAGE**

The results indicate that the older age bracket has no non-English speakers, more English-only speakers in the youngest age category (79%) and 30–39 age category (73%) and an almost even spread in the 20–29 age category: students for whom English is (53%) and is not a first language (47%).

Of note is that the highest percentage (47%) that did not have English as their first language and were in the 20–29 years of age group. Figure 5.5 shows the distribution of students by first qualification, enrolment and employment status.

**FIGURE 5.5: DISTRIBUTION OF STUDENTS BY QUALIFICATION; ENROLMENT AND EMPLOYMENT STATUS**



Almost four fifths of the participants were studying to receive their first qualification (84%). Figure 5.5 shows that almost all of the participants are enrolled full-time (91%) with only a small percentage enrolled on a part-time basis (9%). Figure 5.5 also shows that 52% of participants are employed and 48% are unemployed.

Of those students who indicated that this was not their first qualification, only 14 students indicated their prior qualification. Of these, two students indicated they had completed a Certificate III or IV level qualification, nine students had completed

a diploma and three had completed another degree. Students were also asked to indicate the hours that they were employed. The distribution of students among hours of employment is shown in Figure 5.6.

**FIGURE 5.6: DISTRIBUTION OF STUDENTS AMONG HOURS OF EMPLOYMENT**

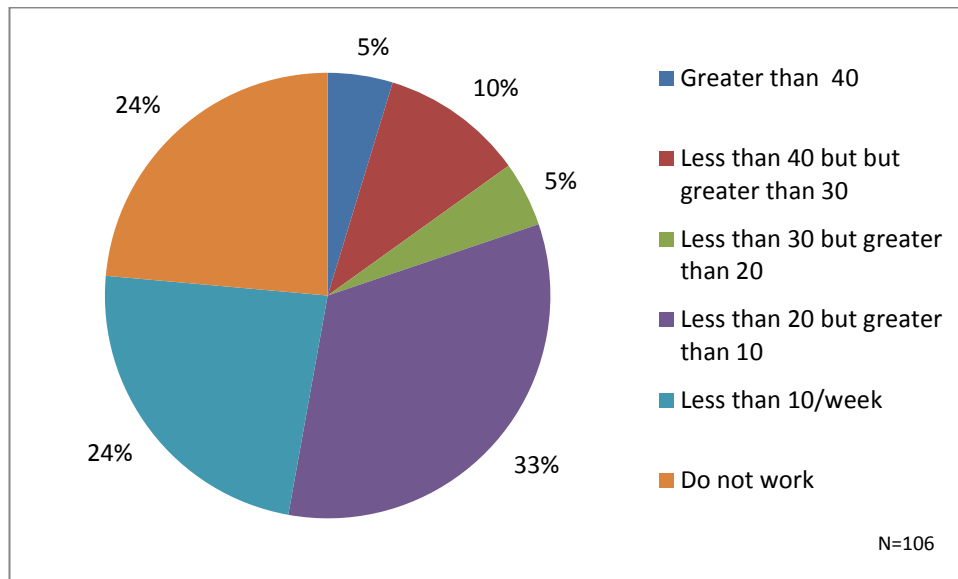


Figure 5.6 indicates just under half of all participants (48%) were employed less than 20 hours per week (24%) or did not work at all (24%). Around a third worked 10 and up to 20 hours per week and the rest worked more than 20 hours per week.

Students also were asked to indicate if they were enrolled in any other BLD or BMA units in the same semester. At the time of completing the post-unit questionnaire, 127 (83%) of students were undertaking one BLD unit and 26 (17%) a different BLD unit. The majority of these students also had completed BMA units in the intensive and experiential formats.

In summary, response rates and explanatory variables have been explained. The next section provides the descriptive statistics in relation to the questionnaire categories and the relationship between responses pre-unit and post-unit. The importance of these results is offered and the extent to which confirmation or disconfirmation of the postulates is presented.

### 5.3 POSTULATE SUPPORT

Given the explanation to be developed relates to an outcome that has already occurred, and given the stated ontological approach cannot be tested, the challenge is to develop and present a set of postulates to tease out the presence of unobservable mechanisms (Mahoney 2003).

This section presents evidence that provides varying degrees of support for each of the 12 postulates developed in Chapter 3. The first set of four postulates, (1, 2, 3 and 4) relate to presence of student factors that may enable the development of graduate attributes under investigation. **Postulate 1:**

*A student's habits of thought are capable of being altered through frequent and varied opportunities for reflexivity.*

The qualitative data supports the notion that students' habits of thought are malleable enough to be self-altered when activated by specific mechanisms and conditions.

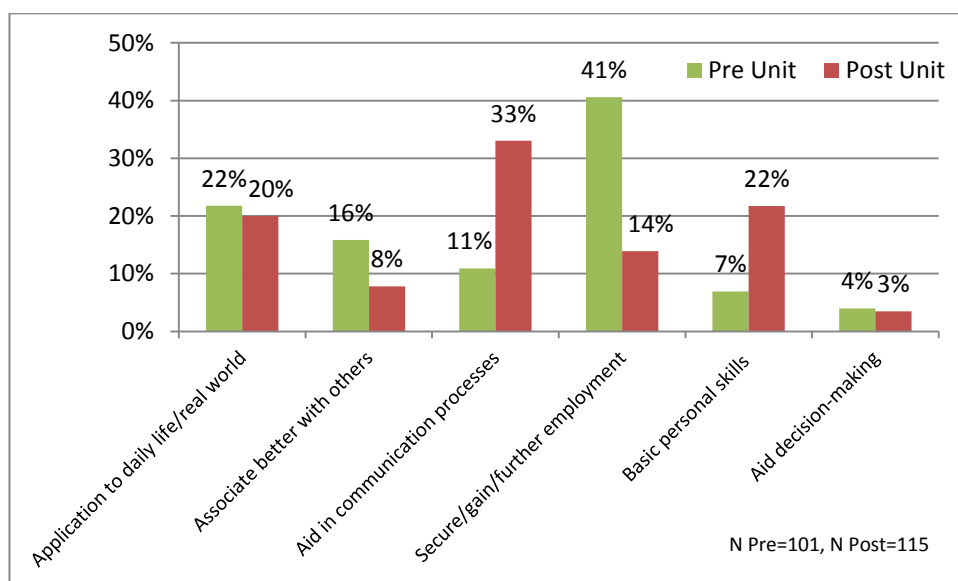
Of interest, the thematic analysis of the post-unit questionnaire showed a number of students felt they had become more adaptable through frequent opportunities to engage in learning activities outside their comfort zone, when the environment was perceived as 'psychologically safe' and student-considered. Students described a student-considered learning environment as one where students critically reflect on their own values and experiences and have opportunities to discover the individuality in others. Activities such as planning, executing and evaluating an event, building a website, and undertaking a negotiation of a complex industrial relations issue were examples cited as being outside the comfort zone. This freedom in activities to innovate and make mistakes, along with some task ambiguity, allowed for 'thinking outside the square' and a chance to 'explore some perceived unique ideas' (Student comment). Students reported this led to an increased ability to employ flexible and adaptive responses to new and novel situations.

In both experiential units (offered across the semester and by intensive delivery) students commented through focus groups that when the educator created opportunities for students to engage in personal-self-evaluation and reflexivity (for example, through writing a negotiation journal or developing a personal learning statement), this led to a heightened sense of place and awareness of personal values which may lead to a student examining his/her habits of thought.

This heightened sense of place and awareness of values is also reflected in the changed levels of importance of graduate attributes in the quantitative data, pre-

unit to post-unit. Of interest, as shown in Figure 5.7, are the increased value of graduate attributes to aid communication skills (from 11% to 33%) and the decreased importance of graduate attributes to secure/gain further employment (from 41% to 14%). The increase may be attributed to students focusing more on the graduate attributes needed for coping with real life experiences and lesser attention to securing employment. There was little change from pre-unit to post-unit on the perceived value of graduate attributes to help deal with daily life experiences.

**FIGURE 5.7: WHY GRADUATE ATTRIBUTES ARE OF IMPORTANCE TO STUDENTS – PRE-UNIT AND POST-UNIT**



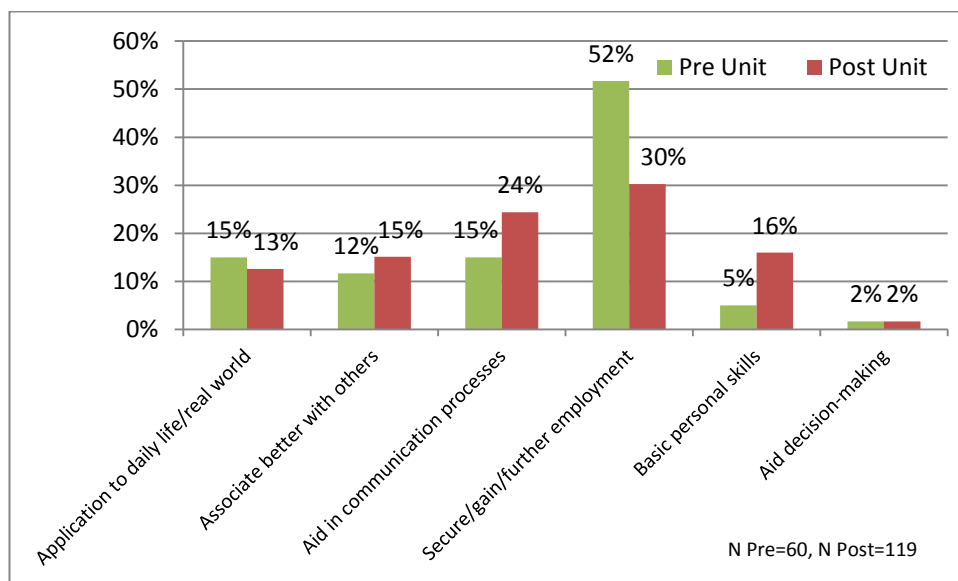
When asked in both the pre-unit and post-unit questionnaire, how students might use graduate attributes there was an increase in the perceived value of graduate attributes to communicate (11% to 33%). As 79% of questionnaire responses were from students in the 20–29 age category, it is of interest that responses to this question also indicated an increase in the value of graduate attributes for

enhancing basic personal skills such as self-confidence from 7% to 22% and reflected in the following comment:

'I started to develop confidence in making decisions related to my learning tasks and not feeling afraid of failing in the process' (Student comment).

These results are shown in Figure 5.8.

**FIGURE 5.8: HOW STUDENTS MIGHT USE GRADUATE ATTRIBUTES PRE-UNIT AND POST-UNIT**



Qualitative data from the post-unit questionnaire sought to identify other factors students perceived may have enabled or suppressed graduate attribute development in other BLD or BMA units. Two student-student based factors were seen as instrumental in supporting changing students' habits of thought. These were opportunities for exploring and considering others' perspectives, and encouragement by the educator and freedom to engage and explore one's own perspectives. For example, students identified engaging with industry and key stakeholders to identify key criteria for conducting a successful event, which lead to



reflection on pre-existing notions of a 'successful event'. The importance of this engagement is also noted in an educator semi-structured interview response:

'I try and role model the skills I want my students to develop. I get them to work in different groups to get them to appreciate diversity (in relation to social responsibility). They engage in problem-solving through a lot of group work. The feedback they receive on their reflection activities (and the reflective practice itself) I believe helps fosters graduate attribute development' (Educator 4).

The thematic analysis from the post-unit questionnaire revealed that assuming responsibility for researching and solving individual or group problems, testing out assumptions in the 'real world' and talking about ideas, supported students changing their habits of thought, as noted in the following comment:

Yeah, we reflected a lot. Especially, when we realised whenever you add something to the site, you'd notice a clear spike—whichever link it was, if it was a website or video or whatever [others nodding in agreement]' (Student comment).

Focus group data suggests that the actual nature of the learning activities (that is, if they are experiential and near to real life) and a situation where students feel safe trying out different ways to approach a task (so have a high degree of freedom) can foster self-confidence and impact on the associated identity of the student for broader 'consumption'. The following comment reflects this statement:

'As we talked about them [graduate attributes] from Week 1, I was conscious of what skills I was using in planning the event. I was reflecting a lot on what I was doing well and where I wasn't contributing or finding it hard. We talked about the theory of problem-solving and then had a chance to apply it in a practical way through the event—that was great' (Student comment).

Other students spoke of the negative impact a learning environment that isn't as student-considered, can have on changing students' habits of thought:

'I think the unit needed more structure and more face-to-face time would have meant getting feedback on our questions which wasn't easy. I think it would have been better if we could choose to be online for meetings not just have to' (Student comment).

'There is not enough freedom in other units [traditional]. I mean you are told how to do things – I am not sure if I knew much about them [graduate attributes] except they are in the unit outline' (Student comment).

'I think we were just worried about the timeline and looking for the lecturer to solve our problems rather than being a bit more self-directed and working out strategies' (Student comment).

The semi-structured interviews with educators provided evidence of the value of a reflective and authentic assessment and how it may support change in students' habits of thought as noted in these quotes:

'The classroom-as-organisation (CAO) approach was adopted as a pedagogical approach to delivering this unit. The CAO approach helps students develop greater self-confidence, greater self- and social-awareness and greater understanding of what it is like to work in an organisation. As research in emotional intelligence suggests, experiential methods that provide opportunities for individuals to practice, test and reflect on learned behaviours in and out of the workplace can positively contribute to emotional competency development such as relationship management (working in a group and developing adeptness at inducing desirable responses in others) and self-management (managing one's internal states and feelings)' (Educator 9).

'I got them to think about the [Government Department X] projects—what they involve; what they mean to the community to the environment you know. They developed a site plan for [X location] and then did an actual presentation to [Government Department]. So it is all about being an active learner in the most close to real-life as is possible or feasible' (Educator 5).

Data from informal interviews with students, along with the researcher's own observations, also highlight that the process of changing students' habits of thought can be facilitated by summative feedback (grades vis-à-vis assessment criteria) and by formative assessment (that relates to both the positive and negative aspects of performance and where future change is possible). This data suggests that when reflective components are integrated into both formative and summative assessment they have the power to change a student's habit of thought. In the informal student interviews examples such as the following were provided:

'... there were lots of opportunities for personal reflection on what we feel is valued' (Student comment).

'Yes I think reflections are good too... it gets you to analyse what you feel... what you believe and how that can impact on your decisions' (Student comment).

In summary, the data proved important and this leads to a strong confirmation of this postulate.

**Postulate 2:**

*A student's deep approach and strategy to learning may enable graduate attribute under certain conditions.*

The post-unit questionnaire showed the distribution of responses related to students' attitude towards study and their usual way of studying (Appendix 5). Data was only collected on students' attitudes and approaches towards study in the pre-unit questionnaire and not post their learning experience.

Attitudes were investigated using 20 variables each with a five-point scale ranging from 1 = 'Never or only rarely true of me' (1) to 5 = 'Always or almost always true of me' (5). The Revised Two Factor Study Process Questionnaire (Biggs, Kember & Leung 2001) was used as it has sound psychometric properties (Biggs, Kember & Leung 2001). The questions develop a measure of a student's use of deep and surface approaches to learning (Biggs, Kember & Leung 2001).

The deep approach scale consisted of 10 items (10 variables from a list of 20). The range of possible scores was 10 to 50, midpoint 30. The score for deep approach was obtained by adding a student's score for items 1, 2, 5, 6, 9, 10, 13, 14, 17 and 18. Cronbach  $\alpha$  for the present sample of .746 is considered acceptable (Biggs, Kember & Leung 2001). The surface approach scale consisted of 10 items (10

variables from a list of 20). The range of possible scores was 10 to 50, midpoint 30. The score for surface approach was obtained by adding a student's score for items 3, 4, 7, 8, 11, 12, 15, 16, 19 and 20. Cronbach  $\alpha$  for the present sample of .810 is considered acceptable (Biggs, Kember & Leung 2001). Table 5.1 depicts the mean results for students' approach to learning.

**TABLE 5.1: MEAN RESULT—APPROACH TO LEARNING BY RESPONDENTS**

<b>Approach</b>	<b>Mean</b>
Deep (DA)	2.95
Surface (SA)	2.68

The question responses range from one to five with a mean of approximately three for each learning approach. As both 'deep' and 'surface' learning are close to the overall mean (2.5), students employ these approaches only moderately but in a positive direction.

A One-way Between-groups Analysis of Variance (ANOVA) was used to explore the impact of age on approaches to learning. Participants were divided into four age groups as there were no participants in the original pre-unit survey >50 years category, the age groups were re-categorised into four groups (Group 1: <20 years; Group 2: 20–29; Group 3: 30–39 and Group 4: 40+ years). There was a statistically significant difference at the  $p < .05$  level in the approaches to learning for eight of the twenty questions as summarised in Table 5.2 below. The complete ANOVA results are provided in Appendix 11.

**TABLE 5.2: SIGNIFICANT RESULTS – IMPACT OF AGE ON APPROACHES TO LEARNING**

Question	Age Less than 20	Age 20–29	Age 30–39	Age 40 Plus	P value
<b>Deep learning</b>		→	→		
<b>Question 6:</b> I find most new topics interesting and often spend extra time trying to obtain more information about them.		2.36	3.55		0.012
<b>Question 13:</b> I work hard at my studies because I find the material interesting.	2.36		3.55		0.029
<b>Question 18:</b> I make point of looking at most of the suggested readings that do with lectures.	2.43		3.64	4.25	0.000
<b>Surface learning</b>		←	←		
<b>Question 7:</b> I find I do not find my study very interesting so I keep my work to the minimum		2.51	1.45	1.45	0.002
<b>Question 8:</b> I learn some things by rote going over and over them until I know them off by heart even if I don't know or understand them.		2.99	2.00		0.012
<b>Question 11:</b> I find I can get by in most assessments by memorising key sections rather than trying to understand them.		2.79	1.45		0.006
<b>Question 15:</b> I find it is not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with the topic.		2.26	1.19		0.012
<b>Question 19:</b> I find the best way to pass assessments and exams is to try and remember answers to likely questions.	3.34	2.60	2.09		0.011

The results on the impact of age on approaches to learning in Table 3, suggest that in general older people are more responsive students. The general trend for deep learning is for there to be a positive gain in mean values for those attributes, that is, from a low mean value (rarely/sometimes true) to a higher mean value (frequently/almost always true) with an increase in age. For questions centred on surface learning the reverse is true and means are in a negative direction—from low to higher means as age decreases. Also of note is the effect size for significant results was weak for Question 17 and moderate for all other questions.

An exploratory Factor Analysis (Pallant 2013), based on the 20-item Revised Study Process Questionnaire, was used to gather information about the underlying constructs within responses to approaches to study and learning (DeCoster 1998). The Factor Analysis was first conducted using all 20 questions then repeated for the two approaches to learning (deep and surface). As this is an exploratory study, there was scope for using Factor Analysis to see if there is any latency in the data that were not obvious using other techniques.

The students' attitude towards study and their usual approach to learning were subjected to Principal Component Analysis (PCA) (Pallant 2013) using IBM SPSS Statistics Version 22. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many co-efficients of 0.3 and above. According to Pallant (2013), at least some correlations of  $r = 0.3$  or greater are required for factor analysis. Additionally, Bartlett's test of sphericity should be statistically significant at  $p < 0.05$  and the

Kaiser-Meyer-Olkin (KMO) value should be 0.6 or above. This data had a KMO value of 0.625 exceeding the recommended value of 0.6 and Bartlett's Test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix. The PCA revealed the presence of 6 components with eigenvalues exceeding 1, explaining 24%, 13%, 7%, 6%, 6% and 5% of the variance respectively, and a total of 61% of the variance.

An inspection of the scree plot revealed a clear break after the second component. Using the scree test (Pallant 2013), it was decided to retain two components for further investigation. This was further supported by the results of Parallel Analysis which showed only two components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (20 variables x 153 respondents). The two-component solution explained a total of 36% of the variance with component 1 contributing 24% and component 2 contributing 12%. The total variance results are presented in Table 5.3. The first factor resolved itself into issues relating to surface learning and the second factor resolved itself into deep Learning and the questions and loadings are shown in Tables 5.4 and 5.5. The ANOVA suggests that if these factors were crossed with age (not analysed here) the results should map across ages with the younger cohort patterning around the first factor and the older cohort the second.

**TABLE 5.3: FACTOR ANALYSIS—STUDENT APPROACHES TO LEARNING—TOTAL VARIANCE EXPLAINED**

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.716	23.581	23.581	4.716	23.581	23.581	3.240	16.199	16.199
2	2.557	12.783	36.363	2.557	12.783	36.363	2.000	9.999	26.197
3	1.462	7.310	43.673	1.462	7.310	43.673	1.949	9.743	35.940
4	1.273	6.367	50.040	1.273	6.367	50.040	1.811	9.057	44.998
5	1.163	5.816	55.856	1.163	5.816	55.856	1.692	8.459	53.457
6	1.066	5.329	61.185	1.066	5.329	61.185	1.546	7.728	61.185
7	.938	4.690	65.875						
8	.857	4.284	70.159						
9	.747	3.737	73.896						
10	.719	3.596	77.492						
11	.639	3.194	80.686						
12	.620	3.100	83.785						
13	.522	2.612	86.397						
14	.489	2.447	88.844						
15	.454	2.271	91.115						
16	.409	2.044	93.159						
17	.382	1.908	95.066						
18	.377	1.885	96.951						
19	.324	1.618	98.569						
20	.286	1.431	100.000						

Extraction Method: Principal Component Analysis.

**TABLE 5.4: FACTOR ANALYSIS OF ALL 20 QUESTIONS ON ATTITUDES TO STUDY: FIRST FACTOR LOADING—SURFACE LEARNING COMPONENTS**

.695	Q. 12	I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra
.688	Q. 3	My aim is to pass the unit while doing as little work as possible
.687	Q. 7	I do not find my study very interesting so I keep my work to the minimum
.669	Q. 15	I find it is not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with topics

**TABLE 5.5: FACTOR ANALYSIS OF ALL 20 QUESTIONS ON ATTITUDES TO STUDY: SECOND LOADING FACTOR—DEEP LEARNING COMPONENTS**

.733	Q. 9	I find that studying academic topics can at times be as exciting as a good novel or movie
.701	Q. 2	I find that I have to do enough work so that I can form my own conclusions before I am satisfied
.595	Q. 1	I find that at times studying gives me a feeling of deep personal satisfaction



Although the quantitative data indicates little difference in means and some age-related findings between surface and deep approaches, there was evidence from the focus groups that a student-considered learning environment may result in a deeper approach to learning, as students' level of personal satisfaction through learning experiences is enhanced and curiosity is nurtured. It was also noted in the focus groups, that this outcome may be mitigated for students with English as a second language, who may have had limited exposure to experiential or intensive approaches to learning or to units which often have a significant amount of group learning activities.

Also of interest is data from the informal student interviews. Students said that in some units where the approach to learning was experiential, educators considered individual ways of learning:

'... [There were] several opportunities and means of assessing [my] development' (Student comment).

The Personal Learning Statement (PLS) was an assessment item for an experiential and intensive delivery unit. Students were asked to reflect on the development of the attributes, upon which this and other 'creativity' and 'entrepreneurship' units are based. Twenty-three anonymised statements were provided to the researcher with student permission. The Personal Learning Statements (PLS) (Appendix 8) responses revealed concerns about the structure of other more traditional units:

'I'm still not really sure how I like to learn. I guess most of my profound learning experiences have been from doing and not from being directly taught. I feel like the current structure of most of my classes is less than desirable. I don't think I've learnt too much at university except how to do tests and a bunch of abstract formulas' (Student comment).

This comment may be important in the context of students' changed perception (from pre-unit to post-unit) of their level of graduate attribute development particularly given the importance of deep learning approaches to their development.

Data from the Paired-Samples T-Test showed a significant increase in students' perceived ability to demonstrate each of the three elements of communication from pre-unit to post-unit. There was also a significant increase in students' perceived ability to demonstrate two of the three elements of problem-solving, and two of the three elements of social responsibility, as shown in Table 5.6.

**TABLE 5.6: PAIRED-SAMPLES T-TEST—PERCEIVED CHANGES IN STUDENT’S ABILITY TO DEMONSTRATE GRADUATE ATTRIBUTES FROM PRE-UNIT TO POST-UNIT**

	<u>Communication:</u>	Mean Pre	Mean Post	P
Pair 1	I can engage in persuasive, succinct oral discussions to communicate and influence other persons.	3.51	3.93	0.000
Pair 2	I can construct well rendered, clear and concise written communication skills matching real world business situations and audience needs.	3.53	3.83	0.001
Pair 3	I can communicate an argument in a succinct and logical manner and articulate it in an engaging and confident way.	3.59	3.87	0.000
	<u>Problem solving:</u>			
Pair 4	I apply logical, critical and creative thinking to complex business problems.	3.73	3.96	0.003
Pair 5	I apply theories, models and methods to a range of management related problems.	3.31	3.76	0.000
Pair 6	I can locate, evaluate, analyse and use information from a range of media.	3.76	3.92	0.057
	<u>Social Responsibility:</u>			
Pair 7	I consider social groups in business practice.	3.65	3.99	0.000
Pair 8	I apply ethical values via confidential, honest practices and respectful behaviour	3.91	4.02	0.174
Pair 9	I show awareness and consideration of the public interest in business practices, policy and decisions.	3.79	3.99	0.020

Further analysis of data from students’ PLS was undertaken with particular interest in Question 2 as follows:

Q2. Do you like to learn in different ways? And if so, how has the approach in this unit helped/hindered you?

A summary of the key themes from the responses to this question in the PLS is provided in Appendix 8. A common theme was that this assessment item fostered creative thinking and helped students build confidence in their ideas through the learning process. Students indicated that the activities ‘moved them out of their

comfort zone’ (student comment), and as a consequence strategic thinking was developed:

‘I started to develop confidence in making decisions related to my learning tasks and not feeling afraid of failing in the process of learning’ (Student comment).

‘Through this style of learning I have been able to briefly learn a theory and put it into practice. Often examples are given in other units on how to transfer theoretical ideas into real life situations; however it is never actually demonstrated or put into practice’ (Student comment).

However, other students felt that in some units, approaches to learning weren’t student considered as noted below:

‘Most of us found it difficult to find time to meet, so in some ways Facebook was good. But everyone learns in different ways and I know some in our group weren’t comfortable in the online environment—particularly when we were trying to plan an event’ (Student comment).

There is weak or limited support from this research that approach and strategy to learning reconciles to perceived graduate attribute development. Students noted the importance of a student-considered learning environment to foster deep approaches to learning, however in this study students employed deep learning strategies, but only moderately. Although students showed an increase in ability from pre-unit to post-unit to develop graduate attributes, there is only weak evidence that a deep approach to learning will enable graduate attribute development.

**Postulate 3:**

*A student's likelihood of demonstrating graduate attributes can be explained by the presence of 'The Reasonable Adventurer' attributes.*

There was evidence from the thematic analysis, post-unit questionnaire and focus group responses that *The Reasonable Adventurer* attributes are developed when the educator has a student-considered learning approach and utilises activities allowing students a high degree of freedom. This freedom allows students to explore and develop *connections* between theory and practice:

'I think the lecturer was pretty interested in the process we had adopted ... how we made decisions – what was our thought process. That's not always the case in other units' (Student comment).

'Initially I show curiosity about why students are here. Often responses are about seeking an 'HD' and my response indicates that I am passionate that they are so focused. When we further unpack their motivations as to why they are here, we often get to occupational aspirations. This allows further probing, for example why do you want to be in human resource management? This process takes some time but allows me to drill down with them to their values, beliefs and needs. By using examples of successful companies such as Google and Apple students come to see that salary is not a real driving force for why successful companies work and why people want to be a part of them' (Educator comment).

'Students are encouraged to be vulnerable in the learning process and I think this is developed to a certain extent by getting them to see me as a person and not a lecturer—helping them to identify with who I am and not what I am' (Educator comment).

Of note from the thematic analysis was several participants said they had become more passionate and inquisitive or curious as new learning was connected or integrated to prior learning and experience. On the other hand, some students in a unit using an experiential approach, perceived freedom as a lack of support and a lack of unit structure where both support and structure are seen to be needed for making independent *in* value judgments:

'Yes but it was hard just using social media like Facebook. There should have been other ways of sharing and giving feedback I think' (Student comment).

'I suppose this is part of what you were saying about being a bit more directed ourselves. I know at work we are supposed to try and sort out our own problems but I was unclear where I was going' (Student comment).

This is noteworthy given that the semi-structured interviews with the educators, employing experiential and intensive approaches to learning, advocated encouraging independence in value judgments and curiosity through students making connections with theory, their own experiences and contemporary issues:

'I want students to think about and talk about their reality. I want them to consider what this means (you know theory) to their world. I try and ask them questions that use 'How'... like how does this relate to your experience? How do you feel about that? It is all about, well as I see it, linking theory to practice' (Educator comment).

The thematic analysis of post-unit questionnaire responses indicated a number of participants saw an opportunity to learn and discover the individuality in others, what they value and why they act as they do, as positive conditions to forge new friendships and a sense of identity. Other students spoke of drawing inspiration from others and the relationships formed, but felt challenged when working 'online'. The focus groups spoke of 'student-considered experiential "hands-on events" not existing in other BMA units' (Student comment). The units with a traditional approach were seen as offering fewer opportunities to build meaningful relationships. Despite challenges in relationship building for students with English as a second language, students in focus groups acknowledged how leverage could be gained to further discover the individuality of others even with the ambiguity in the conversation:

'... because you really can't understand what inflection they're putting on especially if it's incredibly casual. You don't know what direction at all someone's thinking until someone else summarises, you make that connection and summarise theirs with someone else's' (Student comment).

'Yeah, because everyone had their own direction they were trying to head and trying to articulate what they felt' (Student comment).

The following question formed part of that assessment for developing a PLS:

Q3. Are you ok at working by yourself with a degree of ambiguity as to what is expected?

Of interest is the following quote which captures the tone of most responses to this assessment question:

'... I feel it [the assignment] has helped me to not become overwhelmed when faced with uncertainty and to have faith in my own abilities that I can in fact come up with an idea, and then put that idea into action' (Student comment).

Again the value of the PLS was also noted in a focus group with students who completed that unit. Responses confirmed that this assessment challenged students to think about their values, needs and skills needed to function in society.

Another focus group comment was that students valued working independently in the context of a tolerance for ambiguity. They acknowledged the role that the educator played in developing tolerances by offering opportunities for reflection, encouraging students to explore their values, sharing how their experiences relate to theory and in providing support to a student's thought process:

'I am somewhat okay with working by myself with the degree of ambiguity. ... I like to [prefer] to get opinions of my peers to assist in influencing my end position on certain issues' (Student comment).

Despite ambiguity giving rise to some discomfort, most students accepted that dealing with ambiguity is a necessary skill for working in a complex society:

'There is always ambiguity and you are not always "handed" the outcomes that need to be achieved' (Student comment).

On the other hand, some students said working individually with ambiguity was a challenge and argued that working with group opinions and insights would have better supported students' planning and goal setting process for assessment tasks.

The thematic responses also indicated that personal motivation and interest in a topic will impact on the breadth of interest demonstrated by a student in each of the approaches to learning. Freedom to include varying perspectives, the educator's style and degree of formality may also spawn interest as well as opportunities to identify and solve authentic problems. According to focus group responses, despite freedom being cited as a means of encouraging breadth of interest, this can be tempered if students are responsible for determining their roles and task allocation in group learning where insufficient structure is provided:

'Yeah as someone else said more structure early on. More time with the Lecturer – some feedback. Would have been easier to get clear ideas on what we were supposed to do' (Student comment)

A number of focus group responses said that having responsibility for researching and solving their own problems and testing out assumptions in the real world by discussing ideas, inspired a breadth of interest critical to dealing with the complex nature of society as noted in the following:

'...content, absolutely, less restrictions on learning because everyone's different I think and if you've got restrictions there how can you learn? If you're learning here but you can't go past this line, you're not going to learn are you?' (Student comment).

Other focus groups responses noted 'working out how to do something without knowing all the theory first is both a positive and a challenge' (Student comment) and this may impact on the extent of a student's breadth of interest. The data from



the semi-structured educator interviews indicates that some educators are focused on building this breadth of interest in both lecture and tutorial experiences:

‘Some people won’t agree but I think the lecture theatre is a form of participation. I pose questions on slides—often ethical global issues which lead into debates and further exploration of the content in tutorials. I try and get students to think about reading as an ‘active’ experience. It can be if they are prepared to dive into what their reading and consider what it means to their world; to industry and to situations they may encounter in the workforce’ (Educator comment).

The value of fun and use of humour were also noted in the results from the thematic analysis in reference to other units undertaken at the time of completing the questionnaire. Of interest was the value of communicating clearly and sensitively with others, particularly students from diverse backgrounds, and using humour in pursuing solutions to new and novel situations. This use of humour was noted as a means of also overcoming ‘social anxiety’ and was actively employed by some educators. A balanced sense of humour was also a theme of focus group responses, as noted in the following comments:

‘But the humour is a really important part for me ... it is one of the only times where you naturally lower your assumptions, suspend judgement. So if you’re having fun, you’re much more likely to roll with other people’s suggestions and ideas, than if you’re not having fun – it’s almost like, no, we can stick to this. So you’ve just got a chance to move something forward and jump onto a different plane and do something in a different way—if you’re having fun—and of course...’ (Student comment)

‘...Be spontaneous’ (Student comment).

Data from the post-unit questionnaire, focus groups and personal learning statements suggest that when conditions such as the educator fostering curiosity by encouraging students to embrace an opportunity, take risks, make mistakes and ‘work outside your comfort zone’ are present then the mechanism of personal

values reflections and independent learning may be activated leading to a student developing *The Reasonable Adventurer* attributes. Although this study does not suggest a direct cause and effect relationship between *The Reasonable Adventurer* Attributes and the potential for developing graduate attributes, there is sufficient support to suggest that students who demonstrate *The Reasonable Adventurer* attributes may increase their potential for graduate attribute development, if the mechanisms reflexivity and co-reflexivity and a reliance on personal judgments are activated to enable this change. In summary, Postulate 3 is strongly supported.

**Postulate 4:**

*A student's adaptability is influenced by the degree of psychological safety and the pedagogical approach used by the educator.*

In this postulate research suggests that psychological safety supports the development of and consistency of an altered behaviour. Behaviour is changed through asking students to have an adaptive approach to learning experiences and to take risks.

Formal and informal conversations with students, the researcher's own experience and the PLS indicate that students may start a unit from a position of scepticism due to a loss of faith with educators they have previously encountered. Students' comments cite a learning environment seen as theoretical, 'educator-centred' and not supporting students to discover connections between theoretical ideas and their own lives. There is evidence that some educators are not connected to the

students' 'reality', which has triggered this loss of faith in their own capabilities as learners to adapt to new learning experiences and take responsibility for their own learning. This is noted in the following comment:

'Other units don't foster the same confidence or self-belief in what you do ... as this unit does' (Student comment).

The educator's philosophy to student development can impact on whether that scepticism is pervasive throughout the unit or whether psychological safety is developed. This safety is established through honesty, fun, openness and relational trust between the educator and the student, as noted in the following quote:

'It goes back to what the lecturer said about not fearing failure. It happens all the time in the real world. It is what you learn from it that matters' (Student comment).

Focus group comments suggest when a student is situated within a well-functioning group, this promotes listening and appreciation of the individuality of each group member, which may lead to an increase in a student's ability to adapt to new and novel learning scenarios. An intensive delivery mode was viewed as supporting learning, particularly when there are short time frames for preparation, as this motivated students to think faster. However, when group processes are not sufficiently embedded in the foundations of group work, this may limit students' ability to use individual and collective experiences to explore value judgements within the group context. This can result in students tending to defer to the educator for guidance on decision-making and impacting on adaptability. This is

particularly so when working in a homogenous group or if insufficient guidance or support is provided for learning activities or assessment tasks:

'In this unit we had the opportunity to work with students from various backgrounds but I have found that working with just local students, some students just want to get the task done without really exploring ideas you know ... from different perspectives. It is like one comes up with an idea and sort of becomes the leader and everyone else just agrees. The quickest result is the best and I don't think working in teams is like that [or any group]. Some of the students [local] in our unit just wanted the lecturer to tell us how to do it... that's it' (Student comment).

The thematic responses also highlight the extent of social anxiety experienced by students. Social anxiety may arise when students are unclear on assessment tasks, as noted by students undertaking a unit employing a traditional approach to learning. Conversely, in an experiential unit, the opportunity to increase awareness of one's own emotions and how to regulate them was seen as contributing to building adaptability. In a unit employing intensive delivery mode, this was viewed as supporting learning, particularly when there are short time frames for task completion which appeared to motivated students to think faster.

In summary there is strong support for this postulate where adaptability is encouraged in a safe environment underpinned by trust and honesty and opportunities to validate own and others view and incorporate them through self-discovery. The next two postulates, (i.e., 5 and 6) relate to the presence of educator factors that may enable the development of graduate attributes under investigation.

**Postulate 5:**

*An educator's philosophy offers freedom for students to innovate, make mistakes and recover may support graduate attribute development.*

An open, honest and supportive relationship, that includes guidance on how to develop graduate attributes and encourages student innovation affording the opportunity to make mistakes and recover, is seen by students as important. This was particularly emphasized in the strong consensus from focus group participants and from the thematic analysis of the post-unit questionnaires. As stated by one student:

‘I was encouraged to try whether I failed or not and not to fear failure’ (Student comment).

‘The business proposal was all about identifying an idea and taking it further. I mean we had to apply it, so at times I would think this would work and then get feedback, talk to others and find it wouldn’t work. So I had to explore different options’ (Student comment).

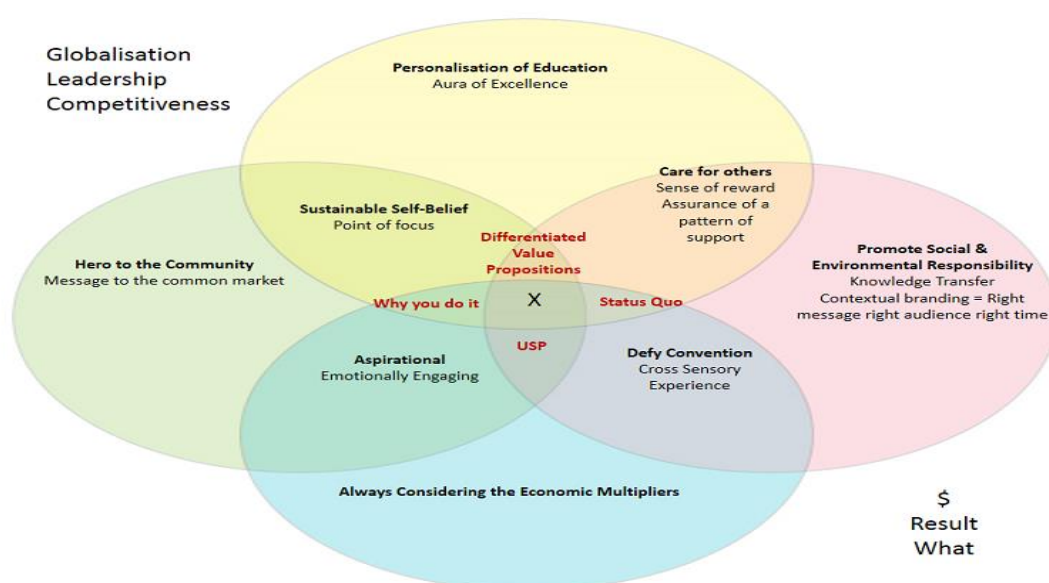
This is in line with the researcher’s own experiences and provides support for the power and influence of the educator’s philosophy on the type of learning environment created and the extent a student’s potential for graduate attribute development is increased. The semi-structured educator interviews, and the researcher’s own experiences, reveal a candid acceptance of the challenges as to how best to implement pedagogical changes, that encourage innovation and risking taking, yet within time and resource constraints, while still achieving unit intended learning outcomes. At the same time the educator consensus was on the need to innovate and provide a more student-considered experience:

‘I want to open the doors to the ways that students can engage with me... and then think about how to effectively engage with others. I want them to think and talk about successful experiences they have had with other students and why they were successful. I also allow stories in my life to come out in my teaching and give permission for others to share their stories’ (Educator comment).

One educator cited that the three graduate attributes under investigation were fundamental to the successful organisation of an event (and a presentation on the event), a key assessable item for the unit. This educator used a Venn diagram to describe the attributes of a successful leader and integrated this into the assessment rubric as part of leading, and organising, a successful event. By encouraging students to *try out* or experience the dimensions during the planning and execution of the event, allowed students to experience the successes and challenges in contextual branding (as element of promoting social and environmental responsibility in this experiential unit). The value of this model is noted by the educator:

'The Venn diagram [see below] is shared and explored with students at the beginning of the unit and repeatedly referred to throughout the students' journey. The elements of the diagram represent, what I believe are the dimensions of global leadership effectiveness' (Educator comment).

**FIGURE 5.9: VENN DIAGRAM USED IN EXPERIENTIAL UNIT ON LEADER EFFECTIVENESS**



It appears that the challenge of promoting innovation is tied to the belief by some educators who see graduate attributes as process skills and are therefore not clearly embedded within assessment. The data also suggests that limited formative assessment or guidance on how to develop graduate attributes is provided to students as noted in these comments:

‘There is so much content that I am probably remiss in thinking about them more than perhaps a mechanism to achieve the subject outcomes’ (Educator comment).

‘Well we can’t really [monitor/measure graduate attributes]. If we devoted say 50% loading to communication then we wouldn’t be able to cover all the subject areas. We have an essay and a case analysis where students have to use their problem-solving skills, but I have to say social responsibility isn’t obviously given any attention’ (Educator comment).

Thematic responses indicated that 15% of the all participants felt free to innovate and make mistakes and some task ambiguity allowed for a chance to explore unique ideas and ‘thinking outside the square’.

A number of other comments from the thematic responses highlighted the important role of relational trust in fostering student innovation. Trust seems to emerge when students have an opportunity to speak candidly with educator, are encouraged to try new ideas and not fear failure. Open and honest communication exchanges were seen as the cornerstone of the educator-student relationship.

Where the educators adopted a high degree of formality in a traditional approach to learning, this was seen as a suppressor to learning and graduate attribute development:

‘Some units are very structured... we are told this is what you need to do. There is not enough freedom to explore your own way of doing something’ (Student comment).

However, a number of students in a unit with a traditional approach to learning said they were not necessarily interested in having opportunities to be innovative; rather they needed a clear understanding of what was required to pass:

'All I wanted to know was what I needed to pass. I needed to know what's expected of me' (Student comment).

This need to 'know what I need to pass' reinforces the comments about surface learning as discussed in Postulate 2 Analysis. In summary there is strong support for this postulate.

**Postulate 6:**

*The use of the 'pedagogical space' by educators can assist in managing student differences to support self-efficacy.*

Student focus group responses suggest that when there is attention by educators to the design and use of learning spaces, student differences can be 'managed' leading to graduate attribute development. Of interest is a remark from a student that some educators consider the individual backgrounds, experience and innate differences of students in the pedagogical design of a unit whilst other educators do not:

'I think the lecturer needs to consider individuals and differences in background and experience. In this unit I think the approach by the lecturer has taken consideration of our backgrounds... like our experience... our feelings even' (Student comment).

Students also commented on instances where the pedagogical space was hindered, or mitigated by communication style and lack of personal interaction:



'I think communication is the biggest one because our group, half of the group is from Launceston, so the only conversation we've had was Facebook messages. So it was just that constant blog of messages and there was no face-to-face interaction at all' (Student comment).

The thematic analysis showed that learning activities in experiential units were seen as student-considered and reflected the diversity of the cohort, although some activities were random, and lacking structure and impacted on outcomes:

'I am doing the [traditional learning approach] unit this semester... it was messy at first but now we have Lecturer X it's better' (Student comment).

'Yeah, as someone else said more structure early on. More time with the lecturer – some feedback. Would have been easier to get clear ideas on what we were supposed to do' (Student comment).

'I think for some people they needed more structure in the unit—for me that was the case. So the way the unit was run didn't really help me. I am at the end of my degree and am keen to just get it over with' (Student comment).

Blended unit design is reported as a positive means of developing graduate attributes through a student-considered use of pedagogical space. One focus group spoke positively of their experience in being responsible for planning, designing, implementing and evaluating of an event. The nature of the event necessitated using a variety of technologies to execute the plan and communicate within the team and other stakeholders such as industry:

'We also communicated with industry to find out their perspectives on our event idea' (Student comment).

'Well we needed to communicate amongst our group and ensure we could justify to the lecturer why we had chosen to conduct our event' (Student comment).

Students in three of the five focus groups, and through the thematic analysis, spoke of a general absence of personalised, individualised learning opportunities (such as the development of personal learning plans). The value of the PLS and the

development of a graduate 'portfolio' with 'evidence' of learning were also noted in both the focus groups and thematic analysis:

'I emphasise too the importance of developing a graduate portfolio. A bit like a "biscuit tin" that you can keep adding bits to as you progress through your degree. Most students want to know why... why a portfolio is important so we discuss at length what "employability" means... what you need to make it happen' (Educator comment).

Where individualised learning opportunities were encouraged, students in one focus group reported they had freedom to consider any relevant material for their project and could personalise the topic so it related to the their world and hence reflected individual student needs. One educator commented that 'freedom' occurs when the intent is for students to view learning as exploratory; to share ideas, experiences and beliefs to gain meaning as reflected in the following comment:

'We need to know key concepts and also how to access important information so what the teacher does is important – like really clear expectations, but then it is about how we plan and execute ideas' (Student comment).

Another focus group said the emphasis of the unit was on personal development, which was well received. Theories were presented as a precursor to the unit allowing opportunities within the unit to 'play around with ideas' (Student comment) as supported in the following comment:

'...we had so much flexibility in our approach to tasks. It's not like that in other units' (Student comment).

As previously mentioned, one focus group and educator provided comments on how the needs of students (through an exploration of their knowledge, skills and behaviours) and those required of them in a leadership role, were central to students planning and running an event. This was reported by students as the educator showing a high degree of interest in the individual student's learning process. Others noted how the pedagogical space allowed for reflexivity:

'We were engaged in a lot of reflection in the planning and executing phases of our event. I think we were all conscious of the approach and the skills we were using... perhaps more so as we felt quite challenged. I think we were all grateful of the support of the lecturer in encouraging us to really consider the process or approach we were taking... there was a lot of emphasis on this' (Student comment).

Informal conversations with students and the researcher's own experience, points to multidisciplinary, multimedia formats engaging students if they are used in the application of real-world problem-solving and assist in developing self-efficacy. However, these multi-media formats may not support managing student differences unless formative and summative feedback is provided:

'Webinars... that would have helped too maybe for groups who were feeling a bit challenged by the task' (Student comment).

'I thought we were having them [webinars], but they were cancelled' (Student comment).

'I think the unit needed more structure and more face-to-face time would have meant getting feedback on our questions - which wasn't easy. I think it would have been better if we could choose to be online for meetings not just have to' (Student comment).

'I think everyone learns in different ways and online doesn't suit everyone. I prefer face-to-face' (Student comment).

In summary, analysis suggests the educator's use of the pedagogical space, where students are encouraged to work in their own way, may help manage students'

differences and support self-efficacy. However, guidance on the structure of learning activities needs to reflect, where possible, the needs of the student cohort. In summary, this postulate is strongly supported.

The next four postulates, (i.e., 7, 8, 9 and 10) relate to the presence of learning environment factors that may enable the development of graduate attributes under investigation.

**Postulate 7:**

*A student's ability to employ self-directed strategies may increase in an authentic learning environment.*

Two educators defined their philosophical approach as student-considered by recognising and acknowledging the value of the students' experience and using this to inform their pedagogical approaches (as discussed in 3.5.2). Another suggested that a student-considered approach that encourages student freedom is a 'mechanism' to develop student self-efficacy:

'I don't deliberately follow an explicit philosophy; I have more of a patch-work approach drawing on constructivism. I consider that anyone coming into class, they are coming in with their context—their own background—their own curves and curls. It is my role to find a way to fit their context to the "classroom" and how the learning environment relates to them. This can be more challenging with undergraduate students. These students often "don't know what they don't know"' (Educator 8).

'I work on connecting the students through theory to industry... sharing their perspectives. I try and instil a sense of passion and develop an emotional connection with the theory through practical examples' (Educator 5).

The emphasis in both of these quotes is on supporting students to find connections between theory and their world of experience. Another educator indicated that he/she models graduate attributes to students and uses questions to explore

students' understanding of why behaviour was used in a specific situation. Two educators also indicated that they specifically use group work to foster the development of communication and problem-solving skills and cited the value of freedom in groups for students to determine how to communicate and solve problems. This pedagogical approach is reflected in the following quote:

'I foster group work wherever possible but I am mindful that it is not always an active experience for students, particularly those from culturally diverse backgrounds. I think a student's personal development can easily start from group work and sharing their ideas within their group... a sort of staged approach. Removing that fear that they have to speak in front of the class (like sharing an idea) can give them confidence to explore their ideas within the safety of a group (albeit a small one)' (Educator 7).

However, when asked about how students become aware of graduate attributes, educators generally indicated they are introduced 'passively' by reference to them in the first lecture, being directed to their presence in the unit outline:

'... The learning and assessment focus is only on content (Educator 3).'

'If students read the unit outline. There is some verbal reference to them [graduate attributes] but not as graduate attributes' (Educator 3).

Four educators indicated that graduate attributes are specifically discussed in the context of assessment, but are not necessarily articulated as part of the actual assessment for a unit. On the other hand, another educator said the focus in the unit was about developing curiosity in students by posing questions such as, 'Why are you here?' The educator stated that the focus on curiosity allowed both the educator and student to 'unpack student beliefs, values and their needs', perceived by the educator as being important to the development of key life skills such as development of self-awareness and self-efficacy, critical for the development of

graduate attributes. The qualitative data including the PLS suggest students value a challenge that fosters creative thinking and self-confidence,

Of note, another educator acknowledged that the graduate attribute social responsibility is not 'addressed' in the unit whilst another said a graduate portfolio is developed through another BMA unit. The following quotes reflect these dichotomous comments:

'At the moment [students become aware of graduate attributes] only through them being in the front of the unit outline. Think it has been a bit of an oversight on my behalf... Uhh perhaps not aligning or talking about their significance in their learning. There is so much content that I am probably remiss in thinking about them more than perhaps a mechanism to achieve the subject outcomes' (Educator 1).

'I think what I need to emphasise here is the development of attributes is linked into the overall planning of a tourism project. So theories, discussions, debates, questions you know are all linked to the project planning process. I emphasise too the importance of developing a graduate portfolio' (Educator 2).

It appears some educators do not specifically measure, judge or monitor the development of graduate attributes. Other educators spoke of discussing communication skills and problem-solving skills with students within the context of an assessment item only, whilst others described how they get students to explore their understanding of certain behaviours and why they are used in specific situations, for example in negotiating an industrial relations issue:

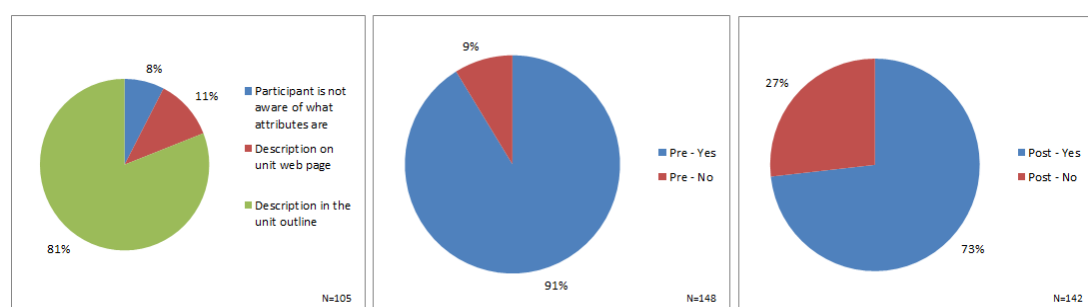
'At the beginning of the unit we talked about our personal experiences with the graduate attributes and how these might influence our roles in the activity' (Educator 8).

Post-unit qualitative data also speaks of the importance of learning activities that are student-considered, appropriately structured and reflect the diversity of the

group. Some students spoke of one unit which focused on developing skills for planning and running a sports event whilst other students spoke of valuable opportunities for self-reflection which was considered as 'authentic assessment'. In an experiential unit students spoke of the range of skills developed by creating a business plan. Other students saw a student-considered learning environment as where blended delivery methods were successfully utilised to negotiate an industrial relations case. During this investigation students kept a negotiation journal which was used to describe and justify a chosen negotiation strategy whilst referencing relevant academic sources.

A question was included in the pre-unit questionnaire to gain an understanding of how students became aware of the graduate attributes. The question was used to give some insight into the extent graduate attributes are embedded in pedagogical approaches that support student-considered learning. Figure 5.10 shows that 81% of students became aware of graduate attributes through the unit outline.

**FIGURE 5.10: HOW STUDENTS BECAME AWARE OF GRADUATE ATTRIBUTES**



This is consistent with the responses in the informal student interviews and focus groups:

'They [graduate attributes] are in the unit outline I think' (Student comment).

'Yes, I think the lecturer mentioned them in the first lecture' (Student comment).

In Part 3 of both the pre-unit and post-unit questionnaire, students were asked to assess their ability to demonstrate the three graduate attributes under investigation. Any changes in the development of the graduate attributes may indicate they were embedded in pedagogical approaches that supported student-considered learning. A paired-samples T-Test (Pallant 2013) was conducted to indicate whether there was a statistically significant difference in the mean scores for pre-unit and post-unit after exposing students to some intervention such as opportunities for practice in the learning environment.

There was a significant increase in students' perceived ability to demonstrate each of the three elements of communication (C) (element 1 = E1; element 2 = E2 and element 3 = E3) from pre-unit to post-unit. There was a significant increase in students' perceived ability to demonstrate two of the three elements of problem-solving (PS) from pre-unit to post-unit (PS E1 and PS E2). There was no significant difference from pre-unit to post-unit for the third problem-solving element (PS E3). There was a significant increase in students' perceived ability to demonstrate two of the three elements of social responsibility (SR) from pre-unit to post-unit (SR E1 and SR E3). There was no significant difference from pre-unit to post-unit for the second social responsibility element (SRE2).

Exploratory Factor Analysis was used to gather information about the inter-relationships between graduate attribute development at pre-unit and post-unit.



The first factor explained a total of 43% of the variance (for the pre-unit questionnaire) with an inspection of the scree plot revealing a clear break after the first component. The total variance results are presented in Appendix 16.

The highest loading was for social responsibility E3 (show awareness and consideration of the public interest in business practices, policy and decisions). Two other variables loaded highly on Factor 1. The variable with the strongest association to underlying latent variable Factor 1 is social responsibility (E3) with a factor loading of .866.

The principal-component solution explained a total of 51% of the variance (for the post-unit questionnaire) with an inspection of the scree plot revealing a clear break after the first component. The highest loading (post-unit) was social responsibility element 2 (E2) (apply ethical values via confidential, honest practices and respectful behaviour), although all three elements for social responsibility loaded as a factor. This variable SR (E2) shows a strong association with the latent variable graduate attribute development. Another variable, SR (E3) (show awareness and consideration of the public interest in business practice, policy and decisions) loaded highly on Factor 1 as did SR (E1). Interestingly, all graduate attributes aggregated in their respective groups (i.e., elements).

When educators recognise and acknowledge the value of student experiences to inform their pedagogical approaches this may enable the development of graduate attributes. The pedagogical approaches need to be authentic embedding graduate

attributes in the learning experience, provide freedom for self-directed learning and to foster a sense of curiosity, employ group learning experiences where students capacity to be a knowledge constructor is central to such approaches. In summary this postulate is strongly supported.

Furthermore, in the cohort of students who participated in this research, those who were aware of graduate attributes pre-unit seemed to increase their competence in most elements of each graduate attribute post-unit, but there is no evidence from this study that any particular teaching delivery mode impacted on this development.

**Postulate 8:**

*A student's ability to show self-authorship may be increased in learning partnerships are formed.*

As noted in postulate 5, learning partnerships seem to be integral to increasing students' potential for graduate attribute development. The focus group responses note the value of developing curiosity in students to engage them in the prospect of being co-constructors of knowledge through questioning of values, beliefs and needs, as referenced below:

'It is interesting to learn in different ways that encourages me to experience new knowledge. It motivated me in that I could work out in a realistic way rather than a theoretical approach' (Student comment) [Note: international student]].

'I could discuss the contemporary industrial issue I was interested in and why it grabbed my attention. The educator was informative and helpful but also asked me some good questions to clarify my rationale. It was the first time I felt that what I said mattered, even though I know nothing really about IR stuff. This helped me gain confidence in writing a research question and finding research sources' (Student comment).

In units employing an experiential or intensive delivery approach, students in focus groups spoke of how creative thinking helped develop confidence as learning was situated within the students' experience. They consistently moved out of their comfort zone engaging in a number of learning activities to help them understand themselves, to be aware of what they know, reflect on it and make judgements about. Students suggested these types of contextual learning experiences encouraged cognitive, intrapersonal and interpersonal development as students explored their values and how they influence relationships and decision making. Activities included games involving submitting a strategy to test students' understanding of theory and their capacity to deal with good and back luck.

In another experiential unit students were required to present their initial thoughts on a project they wished to plan, research and implement during the semester. The project required students to develop a website and achieve an agreed learning outcome as discussed with the educator. Student feedback indicated that opportunities for students' voice in discussing the project and the success criteria with the educator facilitated a learning partnership. Here the educator and student defined the project's focus and how best to communicate the underlying logic in achieving the project outcome:

'... We had an assessment rubric so we knew the criteria for success. But we were told it wasn't about getting the best outcome—raising lots of money, but it was about the process... how we directed our thinking if that makes sense' (Student comment).

'... I guess it was the website, the whole website was a bit daunting... because we'd never ever experienced making a website before or using the internet for marketing... Yeah it's like getting in the deep end; just figure it out. We figured it out: we're done' (Students comments).

However, some students commented that the ‘time in semester’ impacted on the amount of attention given to any one assessment. This in turn can impact on the extent learning partnerships are formed and the educator’s ability to ensure learning is situated within the student’s experience. The following comment captures this:

‘... sometimes things would fall just at a bad time. You’d be thinking about something else’ (Student comment).

The thematic analysis also suggests that students may develop self-authorship through learning experiences when they are exposed to complex ways of making meaning of their personal experiences. Opportunities for self-initiating, self-correcting, self-evaluating behaviour through critical reflection and taking responsibility for outcomes, is seen as important to developing learning partnerships as noted in this student comment:

‘The way this unit has been set up has made me less reliant on external judgments and opinions and to become more individual in my thinking. I also received appropriate feedback on redirecting my thinking back on the right path’ (Student comment).

‘The experience of writing a research paper was challenging but well supported by the lecturer’ (Student comment).

In summary, this postulate that considers learning partnerships where students are validated as co-constructors of knowledge as a means to facilitate the development of self-authorship is supported.

#### **Postulate 9:**

*Assessment criteria and standards based on interpretation of a recognised educational taxonomy, may inform identification and feedback and increase student self-regulation.*

As discussed in Chapter 3, assessment criteria and standards based on the interpretation of a recognised educational taxonomy may support the development of graduate attributes when feedback and questioning by the educator is based on a students' understanding of attributes, their demonstration of attributes or areas of development.

Although the importance of feedback on development of graduate attributes is noted in the thematic analysis, students did not generally comment on whether educators provided rich, divergent, higher order questioning or feedback in any mode of delivery. However, the focus groups' participants and thematic responses spoke of experiential learning activities in two units where the educator probed students frequently to offer a defensible construction of their individual reality. This probing was seen as a positive means for students to self-regulate their progress against graduate attributes. On the other hand, thematic responses to experiences in traditional units indicated that students who consistently performed below expectations, despite a perceived degree of effort, felt their level of self-confidence and ability to self-regulate had decreased.

The researcher's own experience, and other educator interviews, point to the value of feedback by employing a taxonomy such as *Structure of Observed Learning Outcomes* taxonomy (SOLO) (Biggs & Collis, 1982) (as discussed in 3.3.2). Feedback at the higher level of the taxonomy can bring all the significant aspects of a topic together, and guide students when taking their understanding of a topic further:

extending their application into other domains, hypothesizing related issues, or reflecting on their own actions and understanding.

However, in this study there is limited evidence of educators developing assessment criteria and standards consciously based on any taxonomy, although some focus group comments indicate that ‘evaluating’, ‘creating’, ‘reflecting’ and ‘hypothesizing’ form part of the wording in assessment criteria but not specifically linked to graduate attributes. The extent that students understand the higher level (extended abstract) criteria of a taxonomy such as SOLO, versus lower level (multi-structural) assessment criteria (such as ‘combine’ or ‘describe’) is not evident from this research.

It is noted in a small number of the thematic analysis responses that the assessment criteria used in some experiential units were based on a taxonomy that highlighted student strengths and areas for development. However, this feedback was aligned to assessment criteria but again not specifically criteria that consider graduate attributes. The same data highlighted that many students perceived that social responsibility was not included in assessment; communication skills and/or problem-solving were largely not assessed summatively; and formative assessment of communication and problem-solving skills development was only offered in units employing experiential and intensive delivery methods.

Data from informal student conversations also noted a lack of feedback on the development of graduate attributes in units with the exception of communication

skills. Comments indicated that communication skills often formed part of an individual or group presentation, and were summatively assessed. Of interest though is one unit, offered by a traditional approach to learning, used a mid-unit survey that included a specific question on students' graduate attribute development. This was seen by both students and educators as a valuable tool for self-regulation and to inform educators and students on strengths and developmental opportunities.

In conclusion, students generally acknowledged that they did not track their own progress of graduate attribute development and they received limited support from educators through the use of taxonomy or other means to self-regulate. Assessment criteria and standards based on interpretation of a recognised educational taxonomy were not identified by students as being widely employed by educators to support graduate attribute development. Students generally did not actively seek advice on graduate attribute development and questioning and feedback was not widely used by educators. In summary this postulate is weakly supported as there is limited evidence that assessment criteria and standards are based on a recognized taxonomy, however there is evidence that feedback may increase or support self-regulation.

**Postulate 10:**

*Appropriately designed assessment that is self-directed, reflective and authentic is an identifiable feature of graduate attribute development.*

There is strong support for student-considered, reflective and authentic assessment which considers the 'voice' of the student. The following focus group quote, relating to an experiential unit, is one example of many regarding the value of this form of assessment:

'The unit is very self-directed. You need to be responsible for planning and evaluating the success of your ideas for your project. The research we had to do for our project really encouraged discovery—finding the best way to do things' (Student comment).

This study also provides strong evidence to support both self and peer-evaluation in assessment. Examples of opportunities to reflect were personal journals, personal learning statements, peer review of business plans and a book review. The value of these assessments is outlined in the thematic analysis, educator comments and focus group responses, an example of which is:

'... Reflection is really important and that isn't always part of other units. Also 'cause we had so much flexibility in our approach to tasks. It's not like that in other units' (Student comment).

Other students noted the important role of the educator in the assessment process, in providing clear, succinct information on assessment expectations; however, this was not necessarily the student experience:

'I just wanted to know what I needed to pass. I needed to know what's expected of me' (Student comment).

'... if we had more face-to-face contact in the unit earlier on, then I don't think we would have had as many problems' (Student comment).

'Yeah as someone else said more structure early on. More time with the Lecturer—some feedback. Would have been easier to get clear ideas on what we were supposed to do' (Student comment).



As previously noted in postulate 9, data from the educator interviews suggested graduate attributes were often not formally assessed nor monitored as noted in the following comment:

'[Graduate attributes] ... are assessed only really informally in workshops and by observing groups working together' (Educator 6).

On the other hand, three educators indicated that graduate attributes were part of assessment rubrics as summative assessment, but social responsibility was not a priority. Most educators acknowledged that problem-solving skills were seen as process skills to meet the intended learning outcomes and not formally assessed. Two educators indicated that they 'informally' assessed graduate attributes whilst Educator 1 indicated an 'inability' to assess graduate attributes as the learning and assessment focus was on content only.

'For me it relies a lot on intuition rather than a focus on any sort of framework (or rubric). I am aware through their individual assessments on how they are developing their graduate attributes and there is some "retro fit", to the extent they are developed, into the overall framing of assessment for the unit' (Educator 5).

'At the moment [students are only aware of graduate attributes] through them being in the front of the unit outline. Think has been a bit of an oversight on my behalf... Uhh perhaps not aligning or talking about their significance in their learning. There is so much content that I am probably remiss in thinking about them more than perhaps a mechanism to achieve the subject outcomes' (Educator 1).

Educator 9 cited that the three graduate attributes under investigation were fundamental to the successful organisation of an event (and a presentation on the event): a key assessable item within the unit. As previously noted (see Figure 5.9), this educator used a Venn diagram to describe the attributes of a successful leader.

The elements within the Venn diagram were explored in depth with the students and integrated into the assessment rubric as part of leading and organising a successful event.

A common point through the thematic analysis and focus groups was that authentic assessment was highly valued by students. Many comments signalled the worth of not just looking at theory but applying the theory early, and continually in the unit to solve authentic problems. For example:

‘Assignments that reflect students’ reality helped me not become overwhelmed when faced with uncertainty’ (Student comment).

This comment coupled with words used in focus groups such as ‘independent thinking’, ‘dealing with ambiguity’ and ‘self-confidence’ were raised as benefits of reflective, authentic assessment in some experiential and intensive delivery units. Other students said that when applying for a position they could confidently share with a prospective employer the ‘authentic’ projects they had been involved in at TSBE. Students believed these authentic assessment tasks would be good evidence of competency to address a range of employment selection criteria such as communication skills and ability to solve problems.

Students were asked in both the pre-unit and post-unit questionnaire if they were aware of any links between assessment tasks and the graduate attributes in the unit they were undertaking when they completed the questionnaire. Table 5.7 below shows the results.

**TABLE 5.7: AWARENESS OF LINKS BETWEEN ASSESSMENT TASKS AND GRADUATE ATTRIBUTES**

Pre-Unit	Frequency	Percent	Post-unit	Frequency	Percent
<b>Yes</b>	<b>78</b>	<b>51</b>	<b>Yes</b>	<b>113</b>	<b>74</b>
No	58	38	No	24	16
Missing	17	11	Missing	16	10
Total	153	100	Total	153	100

There is a notable increase in the awareness of the link between graduate attributes and assessment tasks from pre-unit to post-unit. The data suggests that appropriately designed assessment tasks that are self-directed, reflective and authentic with clear and concise instructions may act as mechanisms and conditions which may increase a student's awareness of graduate attributes important for enabling their development. This postulate is therefore strongly supported.

The final two postulates, (i.e. 11 and 12) relate to presence of student-student factors that may enable the development of graduate attributes under investigation.

**Postulate 11:**

*Students can alter or put pressure on the learning environment to continually 'stretch' their capabilities, as a result of examining their fitness of routines in a group context.*

One focus group extensively discussed the importance of reflection (as discussed in postulate 1), as a process through which individual students and potentially a group may alter behaviour, by a shift in their separate and collective habits of thought. This group referred to the value of writing a personal learning statement (PLS) in an experiential unit. The PLS was seen as a task that encouraged students to ponder

their learning journey and how their habits of thought may have changed as a result of personal reflection of the suitability of specific behaviours used both individually and as a group member. For example one student spoke of how he coped with ambiguity in a group learning experience:

'At first, I was quite uncomfortable ... , because I'm usually a follower and not a leader. Without proper guidance, I would feel lost and confused. However after this course, I came to understand the necessity of such ambiguity. Being a great entrepreneur means having the ability to take risks. While this particular trait isn't for everyone, I believe I definitely have what it takes' (Student comment) (Note: International student).

Students also commented that the PLS assessment encouraged reflexivity on development of certain attributes through what were described as a series of cognitively and emotionally challenging individual and group projects. The thematic responses also highlighted that opportunities for reflection in a group context supported students to examine the fitness of their routines.

There is evidence from informal student conversations and focus groups that through frequent opportunities for practice, by trying out different ideas, a group's fitness of routines are revised by individuals, and consequently the group, determining what cognitive abilities will best assist their progress in the developing the behaviours required to achieve the learning outcomes:

'The experience was emphasised. We were told in business that making mistakes will occur but it is how we recover from those mistakes that matters. Do you know what I mean?' (Student comment).

The post-unit responses, focus groups, educator interviews and the researcher's own experience confirm the value of freedom in groups for students determining how to communicate and solve problems. Other students in an experiential unit commented that the learning experience and freedom were not emphasised in *other* units:

'There is not enough freedom in other units. I mean you are told how to do things – how to solve problems. You are not taking as much responsibility for your learning' (Student comment).

However, the informal student conversations and focus groups suggest self-directed learning through freedom may not support the evaluation of fitness of routines, if key group processes were not firstly established. This was highlighted as a specific concern for students working in diverse groups and for students working together virtually who noted the importance of group roles and expectations, establishing group norms and determining strategies to build cohesion in diverse group contexts. The next comments reflect concerns international students have on fostering interaction and responsibility within groups:

'I got to understand about the university's culture through our studies generally. Because we were involved in an experiential hands-on event so we also formed and developed a bit of a sub-culture and therefore we needed to work closely so respecting others ideas in our group was really important. I think it was easier in a small group, but we had students from different countries so encouraging everyone to talk and share their ideas was really important' (Student comment).

'Maybe getting everyone to take turns leading the group, that way they [international students] will need to communicate their ideas and help sort out the best way to solve the problems set by the lecturer' (Student comment).

'Yeah, I think they [international students] just don't like units that aren't structured. We were really encouraged to think independently and our lecturer really was interested in the process as much as the outcome' (Student comment).

Some students in the post-unit questionnaire responses referred to the impact ‘disengaged’ students can have on group processes and functioning, and subsequently the group’s capacity to find their own meaning in the topics covered. It was also stated that in some traditional units there is a ‘lack of *pressure* on group members to contribute’ (Student comment). Students who had undertaken traditional units suggested fostering self-regulated learning within the group context could help address issues of inadequate individual student input and to stimulate a group’s continual reflection on group processes adopted (for example evaluation of communication strategies employed in managing a project’s timeline).

‘Yes we relied on each other in our groups to give clarity to points others didn’t understand about the assessment and also the best way to plan our event’ (Student comment).

‘Well the group project was about developing an online project so we had to use these skills, therefore if we had been able to use these skills effectively. We also had to interact with a ‘local community’ to achieve the agreed outcome so each of these skills [graduate attributes] was really important. You know especially communication and being socially responsible... I mean we had to think about how the project related to the community’ (Student comment).

The educators who participated in this study, the researcher’s own experience and thematic analysis of the student responses and the literature reviewed point to formative feedback providing a useful indication of the appropriateness of an individual’s/group’s performance, based on assessment criteria, at any given moment in time. Each focus group said that varying assessment methods acted as a selection mechanism for students to re-examine their individual and consequently a group’s fitness of routines. For example:

'It's hard to explain but I think I reflect on my beliefs and ideas a lot more in this type of unit. Other units seem to be more theory focused and assessment and the outcomes—you know passing' (Student comment).

'I was a bit challenged by the assessments at first. I mean doing a negotiation on line was hard to imagine. When we [group and educator] talked through it and the skills we needed [graduate attributes] then it kind of seemed ok' (Student comment).

However, the focus groups and the thematic analysis suggest actual group processes are not widely assessed by formative feedback. Informal student conversations highlight the value of feedback on all aspects of a group's performance which may enhance the learning partnership.

Educators generally commented that their intent is to provide a student-considered learning environment encouraging students working in groups to strive to find better solutions to problems and effectively 'navigate' assessment tasks. This comment is echoed in the thematic responses. A likely consequence is that a student-considered approach places pressure on educators to continually stretch the students' capability by modifying the learning environment.

There is also evidence suggesting that when certain conditions are in place students make positive changes to their routines, and continue to pursue improved solutions to problems present in their learning environment. When there is respect shown in diverse groups, communication involving external stakeholders to develop perspective building, freedom to try out new approaches to problem-solving, opportunities for reflexivity and use of creative and novel approaches to tasks (to challenge previously held assumptions), an examination of the fitness of routines may act to change behaviour. Such change which may then be transferred from

one learning environment to another, either via individual students' behaviour or through their contribution to the group.

In summary, there is confirmation of this postulate that students can put pressure on educators to alter the learning environment to continually 'stretch' their capabilities. This pressure on the educator results from students examining the fitness of their routines in the group context and altering their habits of thought and in turn behaviour. Such changes to habits of thought and behaviour may encourage students to continue to pursue improved solutions to problems presented in their learning. It appears that the mechanisms that can cause a student to examine his/her fitness of routines is the opportunities to put pressure on the learning environment to 'stretch' capabilities in a group context, when there is reflexivity and co-reflexivity, clear group processes, and ongoing performance feedback in the learning environment.

***Postulate 12:***

*The nature of student collaboration and the type of communal learning activities engaged, impact on a student's sense of identity in group learning.*

There is strong support for this postulate particularly when there is a shared domain of interest in the activities engaged in and graduate attributes are emphasized as important process skills for achievement of collaborative learning activities. Of interest is that 12% of thematic responses cited the value of various forms of collaboration, particularly scaffolding and construction of ideas in



experiential and intensive units. Focus group participants spoke of the value of sharing a repertoire of resources; experiences, stories, tools and ways of addressing recurring or new problems, but also acknowledged the challenge of group diversity:

‘As we talked about them [graduate attributes] from week 1, I was conscious of what skills I was using in planning the event. I was reflecting a lot on what I was doing well and where I wasn’t contributing or finding it hard. We talked about the theory of problem-solving and then had a chance to apply it in a practical way through the event—that was great’ (Student comment).

‘... how you can better work with people from other cultures. It can be really hard in group work. You may get people in your group from another culture you just don’t know how... they just learn differently. Doing group stuff is hard that’s why it is hard to get the best marks if you are in a group like that. I mean one or two people may do all the work’ (Student comment).

Other comments suggest graduate attributes were developed by working with other students which improved communication skills, increased capability and sense of ‘self’.

Other data from the PLS and post-unit questionnaires confirmed that when collaborative activities required high task involvement (deep understanding of a topic) students may adopt a deep learning approach. Evidence from focus groups, informal student interviews, post-unit questionnaires and the researcher’s own experience note that highly collaborative activities requiring students to work in a ‘Community of Inquiry’ (see 3.5.2) where there is a shared domain of interest, resulted in students helping each other to understand key concepts and involved applying various communication and problem-solving strategies to achieve the task outcome. This comment is also reflected in students’ overall perceived ability to demonstrate these two graduate attributes (as noted in postulate 2).

Data from informal student interviews highlighted that experiential approaches to learning afforded opportunities for group work that developed oral communication skills, and to use problem-solving skills to synthesise ideas into an engaging presentation format often working in what was seen as a diverse 'learning community'.

Of interest is the ANOVA tests (post-unit) which revealed a statistically significant increase in students' perceived ability to demonstrate social responsibility (E2) (ability to apply ethical values via confidential, honest and respectful behaviour), as a graduate attribute, across all age groups (Appendix 13). Furthermore all elements of social responsibility loaded highly when the Factor Analysis was undertaken post-unit. However, there is no evidence from this research to indicate if this change in the ability to demonstrate social responsibility (E2) is due to the nature of type of student collaboration or if other un-identified mechanisms are at play.

In summary, there is strong support of this postulate that the nature of student collaboration may enable graduate attribute development when there is a shared domain of interest, sharing of 'resources', authentic learning and tasks that involve a high degree of involvement and collaboration.

#### **5.4: OVERVIEW OF THE FINDINGS**

Throughout this chapter, data from multiple sources, both quantitative and qualitative, has been presented to describe the student, educator, learning environment and student–student factors investigated and to confirm/disconfirm the postulates developed in Chapter 3. Across all postulates, sufficient support has

been found to confirm the logical presence of each postulate. A summary of postulates is shown in Table 5.8:

TABLE 5.8 SUMMARY OF POSTULATES

	Outcome	Type of Data	Research Method
<b>Postulate 1</b>	<i>Strong confirmation</i> that reflexivity and co-reflexivity can alter students' habits of thought	Qualitative and quantitative	Noticing-Collecting-Thinking (NCT) Post-unit questionnaire thematic analysis Educator interviews Focus Groups
<b>Postulate 2</b>	<i>Weak or limited confirmation</i> that approaches to learning correlate to perceived graduate attribute (GA) development	Quantitative Qualitative	Pre-unit and post-unit questionnaire thematic analysis Paired t-test ANOVA Factor Analysis Informal student interviews
<b>Postulate 3</b>	<i>Confirmation</i> that demonstration of 'Reasonable adventurer attributes' likelihood of GA development	Qualitative Quantitative	Focus groups Educator interviews Personal Learning Statements Post-unit questionnaire thematic analysis NCT
<b>Postulate 4</b>	<i>Strong confirmation</i> that adaptability is influenced by psychological safety and pedagogical approach	Qualitative Quantitative	Focus groups Informal conversations with students Educator interviews Post-unit questionnaire NCT
<b>Postulate 5</b>	<i>Strong confirmation</i> that an educator's philosophy that offers freedom for students to innovate, make mistakes and recover may support graduate attribute development	Qualitative and quantitative	Focus groups Informal interviews with students Educator interviews Post-unit questionnaire thematic analysis NCT
<b>Postulate 6</b>	<i>Strong confirmation</i> that use of the pedagogical space can assist in managing student differences	Qualitative Quantitative	Focus groups Informal interviews with students Educator interviews NCT Post-unit questionnaire thematic analysis

<b>Postulate 7</b>	<i>Strong confirmation</i> of embedding graduate attributes in authentic learning will support self-directed learning	Qualitative Quantitative	Focus groups Informal interviews with students Educator interviews NCT Personal Learning Statements ANOVA Factor Analysis
<b>Postulate 8</b>	<i>Confirmation</i> that 'learning partnerships' supporting self-authorship can facilitate GA development	Qualitative Quantitative	Focus groups NCT Post-unit questionnaire thematic analysis Educator interviews Factor Analysis
<b>Postulate 9</b>	<i>Weak confirmation</i> of the use of taxonomy within assessment criteria for feedback	Qualitative Quantitative	Post-unit questionnaire thematic analysis Educator interviews NCT
<b>Postulate 10</b>	<i>Strong confirmation</i> of self-directed, reflective and authentic assessment	Qualitative Quantitative	Post-unit questionnaire thematic analysis Educator interviews Focus Group NCT
<b>Postulate 11</b>	<i>Confirmation</i> that students can alter or put pressure on the learning environment to continually 'stretch' their capabilities, as a result of examining the fitness of their routines in a group context.	Qualitative Quantitative	Focus groups Educator conversations Personal Learning Statements Post-unit questionnaire Informal student interviews
<b>Postulate 12</b>	<i>Strong confirmation</i> that freedom and reflection in a group may shift collective habits of thought	Qualitative Quantitative	Focus groups Post-unit questionnaire thematic analysis Personal Learning Statements NCT

Overall these findings provide support for the proposed model and identified components. This means that we are on safe ground to further consider the formation of a model of graduate attribute development. The next step in this process is to explain the context and operation of this proposed model, and consider its explanatory power.

## Chapter 6

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### Discussion

## Chapter 6: Discussion

*To ask what has caused something, is to ask  
'what makes it happen' (Sayer, 1992, p. 104).*

### 6.0 INTRODUCTION

The purpose of this chapter is two-fold. First is to present the model of graduate attribute development and discuss its explanatory power in relation to the structures, causal powers and what are seen as *optimal* conditions for the model to be confirmed. The aim is to unite the theoretical underpinnings of the explanation provided, by determining the priority and explanatory factors through which the transfactual conditions related to the model, can be reconciled to maximise student potentiality to enable graduate attribute development. This chapter *re-engages* the researcher's voice in an explanation of the structures, mechanisms and conditions (as detailed in Chapter 3.0). The researcher's voice used in conjunction with a more descriptive stance offers a valid explanation of how different structures, causal powers, liabilities and mechanisms manifest themselves in concrete situations. The use of the researcher's voice and the third person offers an insight into the manner in which mechanisms interact with other mechanisms at different levels, under specific conditions.

In discussing the explanatory power of the model and the student, educator, learning environment and student-based factors identified as important components of a model as outlined in Chapter 3). These *factors* or components were not considered in isolation, as it is likely the *inter-relationship* between these

factors may give rise to the conditions to cause the event or phenomenon to occur (Easton, 2010), which in this study is graduate attribute development.

A major element within the critical realist ‘method’ and retroductive argument, and central to the first part of this chapter, is to be able to judge between alternative and competing explanations as to the structures, causal powers and conditions that underlie the event (Sayer, 2000; Easton, 2010; Dobson, 2012). So, for a critical realist the key question is *how* was an explanation offered for graduate attribute development, given the largely *unobservable* nature of factors (related to students, educators and the conditions they interact with and create), that may enable or suppress their development (see Chapter 3).

As the researcher these *optimal* conditions can only be explained retrospectively, and there is a degree of confidence in the explanation of them. I have followed the line of thought of ecologist Sears, who suggests that when the ecologist enters the study area, he or she ‘sees not merely what is there, but what is happening there’ (1980, p.223). So it is important for me as the researcher to have an appreciation of the foundations of learning and development, a clear ontological perspective and an ability to apply such thought in a consistent manner. The use of mixed-method data collection has also added confidence in the potential of the model to explain the nature of such observable factors.

This chapter will consider whether or not the identified *optimal* conditions, proposed as part of the model, ‘occurred by accident or are structurally reliable’, if



they occurred ‘consistently’ and ‘continually’ or ‘fleetingly’ (Jones, 2009 p.134). In doing so, as a researcher it is my role to propose *where* and to what *extent* we are likely to see the model of graduate attribute development occurring. By being able to explain the *extent* that the proposed model may occur, it is likely to give some insight into whether it is feasible or realistic for educators to account for individual differences at a ‘personal’ student level (see 1.6 Research Opportunity).

It is hoped that by explaining the nature of a student’s structure and the causal powers and *optimal* conditions that may produce and maintain these structures, will in some way respond to the question that has emerged through this research about *what the learning environment needs to look like in order that knowledge of it is possible* (see 2.2 Ontology of the LE). If it is conceivable to answer this question, then we may gain a better understanding of why some students appear more capable than others in developing graduate attributes and how educators can manage ‘irregularities’ in students, thereby supporting a student’s potentiality to develop graduate attributes, increase their capability and sense of identity.

The iterative nature of the model is more obvious here. Given the complexity of the model’s ‘optimal’ operation, a simplified explanation is first offered. Then this simplistic version will be unpacked to better explain the complexity of the model.

### **6.1 A SIMPLIFIED EXPLANATION OF THE MODEL OF GRADUATE ATTRIBUTE DEVELOPMENT**

The model reflects the powerful narratives that are woven into the chapters around increasing the *potentiality* of the student for graduate attribute

development and developing their capability and sense of identity, by producing and maintaining important student structures.

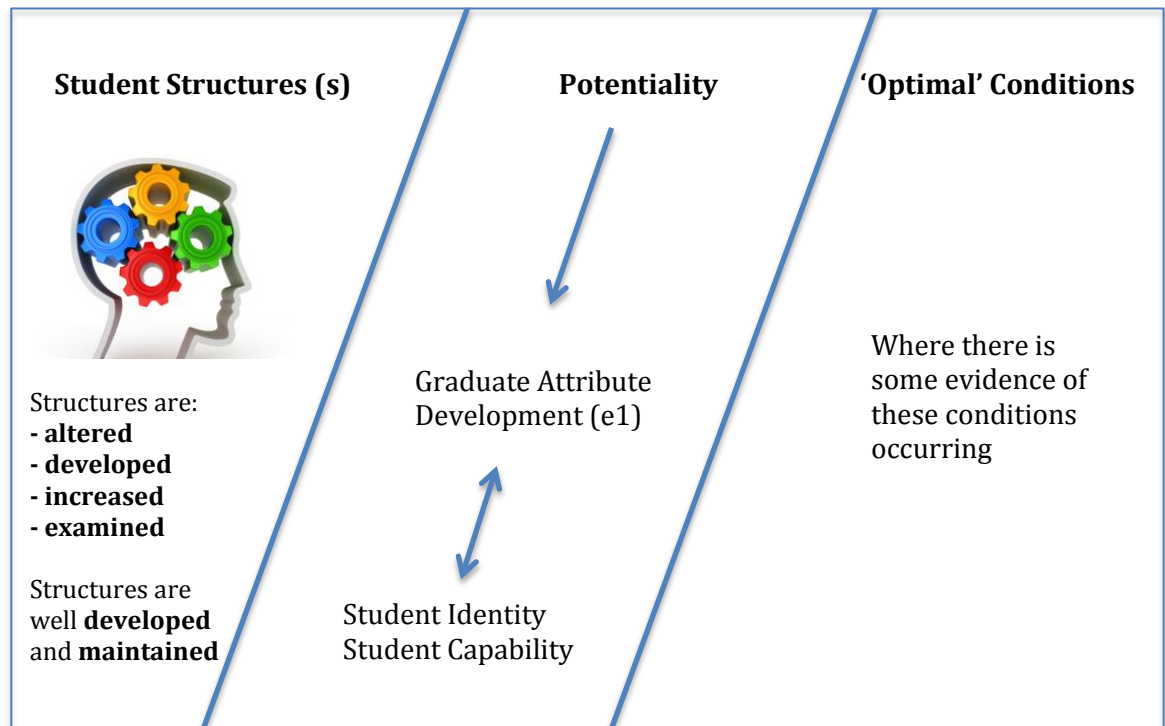
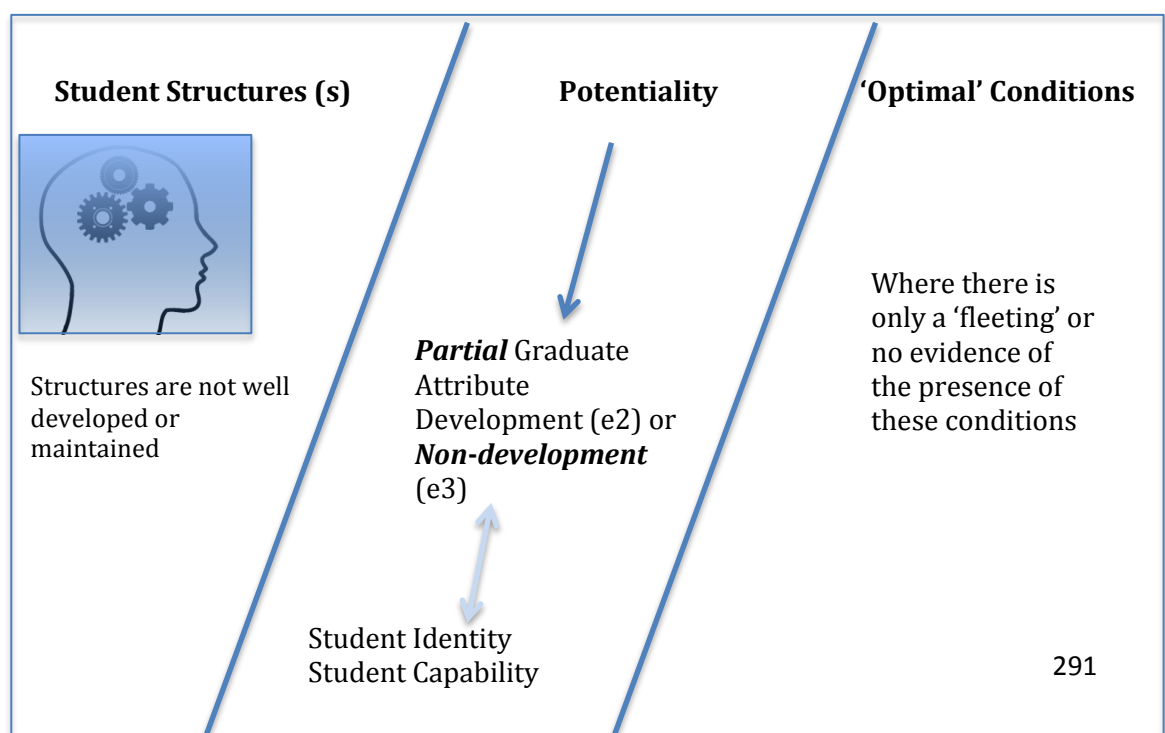
The model is built on the premise that:

An individual student present in any cohort has structures, represented as individual qualities and dispositions, that are capable of being ***altered, developed, increased*** or ***examined***, and that there is a *combination* of mechanisms (causal powers) and conditions that may harness individual student potential for graduate attribute development.

What I have found is that when specific student structures are produced and maintained, through the activation of causal powers and conditions, these *optimal* conditions seem to increase a student's potential for graduate attribute development whilst also advancing the student's capability and sense of identity.

The evidence suggests that for any student structure to be produced (for example, self-regulation or adaptability), that is *altered, developed, increased and/or examined* and then maintained, there needs to be evidence of the observed *optimal* conditions occurring in the learning environment (see figure 6.1 – *operation* of the model). Conversely, in the absence of these *optimal* conditions or if these conditions are only partly present, a student structure may not be produced or produced only 'fleetingly', impacting on student potential to develop graduate attributes, capability and a sense of identity (see figure 6.1 – *non-operation* of the model). Figure 6.1 offers a simplified explanation of the model of graduate attribute development.

FIGURE 6.1 A SIMPLIFIED EXPLANATION OF THE MODEL OF GRADUATE ATTRIBUTE DEVELOPMENT

Operation of the modelNon-operation of the model

In developing this model through the critical realist lens a key question was considered:

*‘Did I discover anything that tells me that any of the mechanisms (causal powers) and conditions postulated are **regularly** evident in the student learning experience?’*

What I didn’t find is evidence of the *optimal* conditions operating consistently. In reality I saw ‘glimmers of light’ (see figure 6.1 – *Non-operation* of the model) but, I didn’t get enough evidence that any of the ‘optimal’ conditions postulated were *continually* or *consistently* present to produce and maintain a structural change in a student. Returning to the electricity metaphor presented in Chapter 2, I did see ‘light bulbs’ glowing brightly: the right amount of amps and voltage creating watts being present. On the other hand, I often saw light bulbs that were *dimmer*: that may not have the amps and voltage needed for full illumination. As noted in 2.1, those students not brightly ‘illuminated’ may not have been exposed to the *optimal* conditions for structural change in this study. There needs to be more than a ‘glimmer’ of presence of these conditions for student structures to be produced and maintained.

The simplistic explanation of the model is now advanced to a fuller explanation of its complexity that aims to provide a detailed explanation of the ‘potentiality’ of the *optimal* conditions by explaining the priority and explanatory factors, through which the transfactual conditions related to the model may be reconciled to enable or suppress graduate attribute development.

## 6.2 DECONSTRUCTING A SIMPLIFIED EXPLANATION OF THE MODEL

The model of graduate attribute development identifies eleven *synchronic* or ‘malleable’ structures relating to the student that can be altered, *developed*, *increased* or *examined* as a result of the student’s interaction with the learning environment. Each of these structures is important to unlocking student potential for graduate attribute development. These identified structures are depicted in Figure 6.2.

**FIGURE 6.2: STUDENT KEY STRUCTURAL REQUIREMENTS FOR GRADUATE ATTRIBUTE DEVELOPMENT**



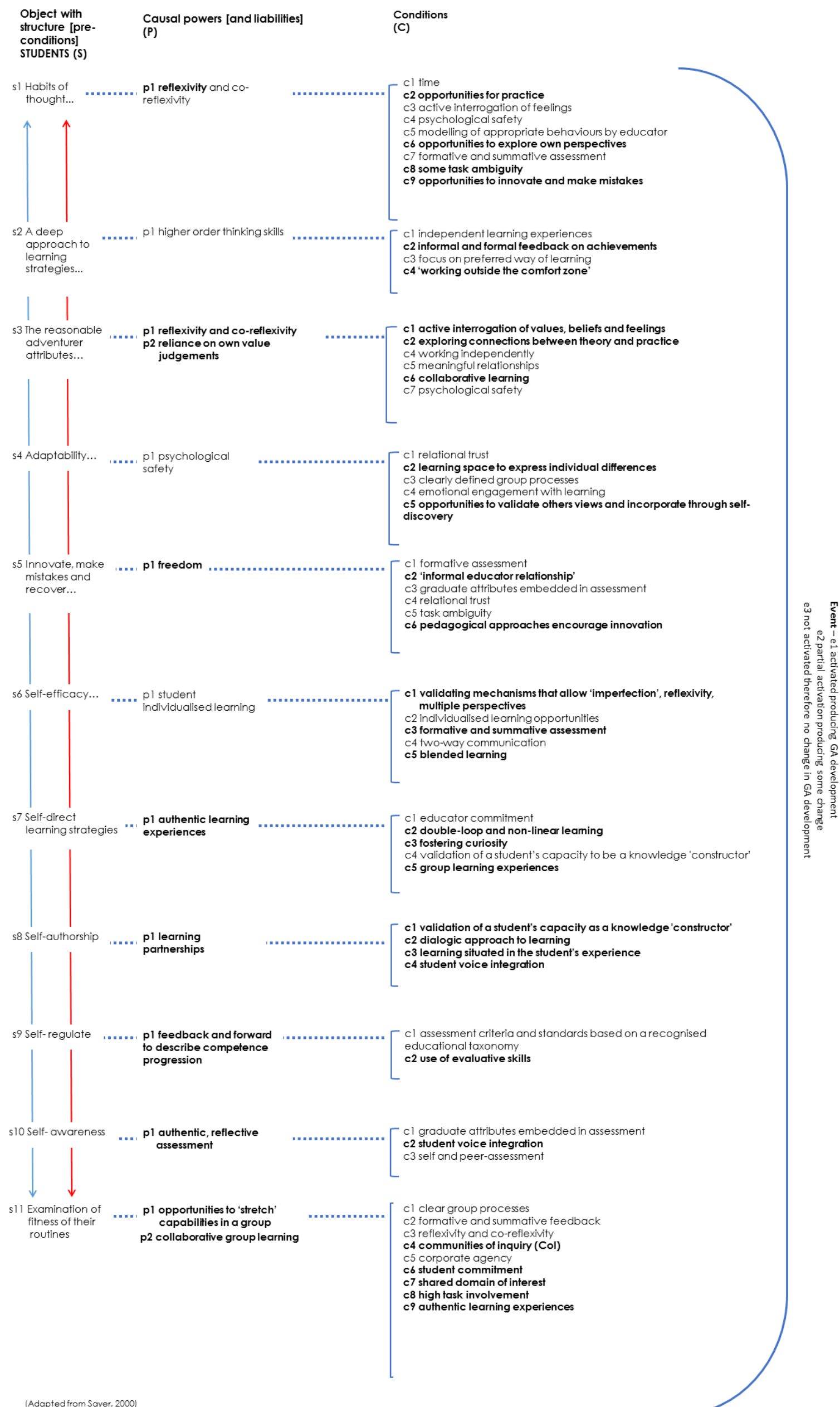
Each of these structures (s1 – s11) emerged from the postulates presented in Chapter 3. The structure (s12) of collaboration and communal activities has been integrated into s11 as will be further explained in presenting the model. There is confirmation of their importance of each key structural requirement to the model of graduate attribute development (see table 5.9). These structures are now shown in the context of the proposed *Model of Graduate Attribute Development* (figure 6.3).

Figure 6.3 on the following page shows each of the structures and the causal powers, which when activated by the *optimal* conditions, may produce changes to

the structures. An example is firstly presented to show the inter-relationship between the structures, mechanisms and conditions important to the model:

Altering a student's habits of thought (s1), may maximise potential to develop graduate attributes and may increase capability and a sense of identity. If habits of thought are altered this may support the student to consistently applying a range of problem-solving techniques to a variety of challenges encountered during the learning experience.

FIGURE 6.3: MODEL OF GRADUATE ATTRIBUTE DEVELOPMENT



By way of further explanation of the model presented as figure 6.3, the **blue line and arrows (left vertical)** signify that each of the eleven student structures (s1 – s11) is related to another but not in a sequential or linear sense. The **red line and arrows (right vertical)** signify that as a result of ‘developing’ a specific structure (s1 – s11) (any one structure being *altered, developed, increased and/or examined*), this offered feedback on producing and/or maintaining another structure/s:

The model identifies causal powers and liabilities (p1 and/or p2) (see 4.2.2) and *optimal* conditions (c1 – c9) that may activate these powers to produce and maintain the key structural changes in students to increase the potential for graduate attribute development. Those causal powers and conditions shown in **bold** in the model (figure 6.3) were more consistently evident in this study showing the model operating to some extent.

The following examples further illustrate where the model was working and some of the key *inter-connections* between the student structures that emerged.

- As a student develops *self-efficacy* (s3) through more individualized student learning, this may provide meaningful feedback on the development of *self-directed learning strategies* (s4) when feedback and feedforward is provided by the educator.
- An increase in *self-awareness* (s9) through authentic learning experiences may provide positive feedback to *student’s examination of the fitness of routines* (s11) in collaborative group learning (when students have opportunities to stretch their capabilities within a group learning experience).



- Learning experiences that provide opportunities to actively interrogate feelings, to explore own perspectives and encourage innovation, to make mistakes and recover may produce reflexivity and co-reflexivity. These causal powers of reflexivity and co-reflexivity can produce change in a *student's habit of thought (s1)*, for example, how a student would approach communication with a diverse group on prioritizing tasks for a research presentation.
- At the same time, reflexivity and co-reflexivity have the power to develop *The Reasonable Adventurer attributes (s3)* including the breadth of interest in a topic whilst also encouraging a student to employ a deep approach to learning (s2). A *deep approach to learning (s2)* may support a student's potential to develop independence in their own beliefs and value judgments (*self-authorship (s8)*).

As the examples show, there were times when the model of graduate attribute development was operating: when student potential was harnessed through exposure to a range of experiences in both experiential and intensive learning environments. This was less evident in traditional learning environments. Although I did not see this model operating consistently or continually, I was encouraged to see students learning how they *relate* to themselves as students, becoming more aware of themselves as individuals, how they interact with, and are perceived by other students and their educators (Daniels & Brooker, 2014).

When the model appeared to be operating the *optimal* conditions were more consistent as noted in the following examples:

- Where educators acknowledged the student voice, and learning was situated within the student's learning experience, student-educator learning partnerships occurred resulting in a student increasing their ability to make meaning and form judgments from their learning experiences *self-authorship (s9)*. The educator's dialogic

learning approach and egalitarian view of where knowledge 'resides' saw students encouraged to develop arguments through claims validated from their own experience.

- Students were 'challenged' to alter their *habits of thought* (s1) through many opportunities for reflexivity. The learning experiences provided some degree of task ambiguity and opportunities for students to explore and consider their personal perspectives. The emphasis by the educator was on *self-directed learning* (s7). Conditions such as frequent opportunities to practice also encouraged students to try out new ways of 'being': to innovate even if mistakes occur, and in doing so develop their capability and a stronger sense of their own identity.
- Authentic learning experiences supported *self-directed learning* (s7), particularly when an educator encouraged student curiosity and where double-loop learning was used to encourage students to reflect on the mental modes used to make their decisions. When an educator demonstrated a committed approach to creating a learning environment that focused on self-directed learning, and validated the student's capacity to be a knowledge 'constructor', then the model is likely to operate more consistently.
- When educators sought student input and perspectives, authentic and reflective assessment was activated producing an increase in *self-awareness* (s10). When a student's voice was integrated into authentic and reflective assessment, and the conditions of self and peer-assessment were present then it is likely the model will operate with self-awareness being increased and maintained.

As can also be seen in the model (figure 6.3) some *optimal* conditions may activate one or more causal powers. For example, the presence of both formative and summative assessment in the learning environment may activate the causal powers of reflexivity and co-reflexivity, freedom, student individualized learning and opportunities to 'stretch' capabilities in a group learning context. Each of these powers has the potential to produce a number of student structures fostering the

potential of students to develop graduate attributes. However, this may have the opposite effect [act as a liability] on the development of a structure if another structure is not sufficiently produced or maintained.

### **6.3 THE CHALLENGES IN GETTING CONFIRMATION: THE REASONS FOR NON-OPERATION OF THE MODEL**

The challenge of getting confirmation of the model can best be explained through the critical realism lens and the simple analogy of alphabet soup. Within the soup 'mix' lays the ingredients of many words: floating, sometimes submerged, and often unseen. Words can be made in the soup but the challenges are 'stacked against' the eager wordsmith. It would seemingly be the same for educators if our students are not developing graduate attributes. It is possible but difficult to account for individual students ('Sam', 'Isobel' and 'Bryan') (see 2.1), and the combination of *optimal* conditions that can potentially produce and maintain the structural change in a student.

In the search to understand causal powers, that when activated may account for a structural change in a student, a number of crucial implications of the critical realist ontology need to be considered which may affect the researcher's ability to get confirmation of the model. First is the recognition of the possibility that *power* may exist *unexercised* and hence that:

'what has happened or been known to have happened does not exhaust what could happen or have happened' (Sayer, 2000 p.13).

Second, Tsoukas speaks of causal powers being either dormant for a while or may be counteracted by opposition 'powers' and leading to no events (1989, p.553). Third he also suggests it is not possible to observe *every* permutation relating to a causal power (Tsoukas, 1989). Next, the proposed model of graduate attribute development attempts to account for causal powers, and the events caused under which 'optimal' conditions, but recognizes there may be other mechanisms or conditions that may suppress or decrease the expected or potential influence of the mechanisms (causal powers) identified in this research study (Tsoukas, 1989).

Furthermore as Pawson and Tilley (1997) remind us that even if certain structures, mechanisms and conditions are in place, some students will not develop graduate attributes which may be attributed to different rates of learning and development and the varying capabilities of students in coping with change, identifying and exploring opportunities and being able to reconcile the known with the unknown (Jones, 2007). Such potential challenges for educators in implementing a model of graduate attribute development, may reflect the frustrations expressed by Giroux who believed that the learning environments are *stacked against* educators (1992).

Moreover, in the 'open' systems of the social world, where interactions occur between internal elements and the environment, the same causal power can produce different outcomes. Moreover, according to the presence of certain conditions, and to the context or to its *spatio-temporal* relations with other objects, *their* own causal powers and liabilities may 'trigger, block or modify its action' (Sayer, 2000, p.15). In essence 'things could go in many different ways', as each

student develops his or her own *identity* and *way of being* in the world, and the dispositions displayed will be both student and context dependent (Barnett, 2009a).

A non-realisation of a posited mechanism can also be understood in the context of human agency: being the notion that humans have the capacity to make choices and decisions, and then act on them in the real world (Archer, 1995). Such capacity is made possible by social structures, such as the educator-student and student-student relationships, that require the reproduction of certain actions/pre-conditions for example:

A willingness on the part of the student and educator to engage in a learning partnership or a willingness to engage in deep learning approaches and strategies when a student's peers use a surface approach.

Further, the students that inhabit these social structures are capable of consciously reflecting upon, and changing, the actions that produce them (Archer, Bhaskar, Collier, Lawson, & Norrie, 1998). As such student identity may evolve as changes in deep beliefs are altered through exposure to critical developmental experiences they have already encountered but which may have been forgotten or suppressed. By bringing these to the surface and provoking awareness, students may experience as Neergaard calls an epiphany (in the context of entrepreneurial education) which may enable students to use such memories activity for identity development (Neergaard, 2014).

The depth provided by realist ontology also allows questions to be asked, such as the conditions affecting agency that are significant in individual students and groups of students, and educators interactions important to graduate attribute development (Archer, 2003). It appears in this study that gendered attitudes, such as an educator's philosophy of teaching or a student's approach to learning, can exist as tendencies or dispositions whether or not they manifest themselves in particular events or particular individuals observe the events (in this context, graduate attribute development) (Brown, 2008). So the way that a group of individuals articulate their aims is important in order to express, prioritise and act upon shared concerns and to respond to cultural challenges such as the diversity of the student cohort (Kahn, 2014).

Brown suggests that the learning environment is both the condition for and the outcome of the human agency of the actors: both educators and students (2008). Among other things, this means that the learning environment needs to be understood as a changing and self-reflexive entity, not as a set of initial conditions that are fixed. For example, students have 'agency' with respect to how, what and when they learn, and it is something intrinsic to each student and needs to be considered if an educator is to support potential for graduate attribute development (Blaschke, Kenyon, Hase, 2014).

The importance of the learning environment to *The Model for Graduate Attribute Development* signals a critical question: 'What is it that experienced educators know

that enables them to establish effective learning environments to enable graduate attribute development?’ Brown suspects that educators even if tacitly believe it is:

‘the characteristics of events and the causes of those events regardless of whether we know of them; the openness of the learning environment; the emergence of causes at different layers of reality; the moral characters of the learning environments; the structure as the conditions for and outcome of human agency; and the changing character of the learning environment precisely because of human agency’ (Brown, 2008 p. 233).

Given what Brown considers an effective learning environment, and understanding of the relationship between structure, causal powers and conditions, this leads back to the research proposition and question posed in Chapter 1:

What needs to exist in today’s higher education learning environment for students transformation that is for students to *think, learn* and *demonstrate* graduate attributes?

Heath argues that only in the well-functioning individual student, does reality achieve depth through the inter-connection of the inner and outer worlds perceived as one. Yet as most educators would acknowledge, students are not always functioning as a whole. The various forms of immaturity and inadequate ‘stances in life’ are likely to be evident in any student cohort (Heath 1964, p.37). Heath refers to the various forms of students as *x, y* and *z* (much akin to the students described in 2.1 as *Sam, Isobel* and *Bryan*), and suggests that the effectiveness of a particular pedagogical approach is likely to be different among students. It may vary

considerably according to both the temperament and the level of the development of the student (1964). Heath argues that what is 'growth enhancing for a y, for example, may be enfeebling for an x' (1964, p.89).

Another challenge in gaining confirmation of the model is when *retroducting* to the level of the Real, it is not always possible to point to the exact causes in absolute terms because the causal powers and conditions are multiple and often unobservable or even unknowable, but the tendencies which are the causal powers exercised may be understood even if not observed (Pinkstone cited in Hartwig 2007, p.458). For a critical realist, causation is *not* understood on the model of *regular* succession of events, and hence an explanation of graduate attribute development need not depend on them (Sayer, 2000). As noted by Sayer:

'The conventional impulse to prove causation by gathering data on regularities, repeated occurrences, is therefore misguided: at best these might suggest where to look for causal mechanisms' (2000, p.14)

Sayer also makes the important point that what causes something to happen has nothing to do with the number of times we observed it happening. Explanation depends instead on identifying causal mechanisms (powers) and *how* they work, and discovering if they have been activated or not. Hence, explaining why a certain mechanism exists involves discovering the nature of the structure which possesses that mechanism or power (2000). The nature of the object and its structure present at a given time suppresses and enables what can happen but does not pre-



determine what will happen (Sayer, 2000). Realist ontology therefore makes it possible to 'understand how we could be or become many things which currently we are not'. In essence the student may develop the structures for graduate attribute development, but as we can see from this discussion, the student may not produce or *maintain* those structures (Sayer, 2000, p.12); therefore confirmation ('operation') of the model may not be achieved or only partially achieved.

Another crucial implication of the critical realist ontology is that causal powers and liabilities are the 'active and passive sides of the same coin' (see 4.2.1 and 4.2.2). For a causal power to have an effect on a structure, the student must have the propensity to be affected or be 'complicit' with it. Causal powers thus have to capacity to do so or become liabilities with the capacity to 'suffer or be affected' (Hartwig, 2007 p.57).

It is therefore proposed that *The Model for Graduate Attribute Development* be considered as a *repository* that educators can draw from to produce and maintain the structures that can enhance potentiality for graduate attribute development, support student capability and a sense of identity so they may respond to challenges in changing personal and professional landscapes. Furthermore to respond to the challenge of finding confirmation of the model, speaks to the need for an *ontological shift* by educators engaging differently with a student's being in the world of higher education (Dall'Alba & Barnacle, 2007). This ontological shift is now further explained.

#### 6.4 AN ONTOLOGICAL SHIFT: WHAT IS NEEDED TO FIND CONFIRMATION OF THE MODEL

In pursuit of the *optimal* conditions that may produce and maintain the structures to maximize student potential for graduate attribute development, and to find confirmation of the model (and if higher education accepts this model), requires a shift in ontological perspective with a focus on the student at the ‘heart’ of the learning experience.’

The literature largely says graduate attributes are mostly regarded as a *fait accompli* within higher education (see Chapters 2 & 3), and in graduate attribute discourse, students are often reified in the sense that they are regarded as products of higher education. Their individual needs or the ontology/being of the student is largely not considered (Daniels & Brooker, 2014; Lea, Stephenson & Troy, 2010) (see Chapter 1). Students are essentially not seen as beings with individual *structures* (characteristics, attitudes, traits and dispositions). Student learning is conceptualized as ‘placing and retrieving knowledge in an inner mental apparatus’ much like a hierarchy ‘of memory boxes or filing cabinets’ (Neergaard, 2012, p.2). Despite claims to the contrary, this research has found that too often the individual student is re-educated to ‘an anonymous body whose potential for experiencing and acting in the real world is overlooked (Holzkamp, 1995 cited in Neergaard 2012 p. 2).

The ontological approach advocated by Barnett has the potential to support the model’s confirmation (2000, 2004, 2009a, 2009b, 2010). Barnett talks about students *knowing, being and doing* within higher education, or in the context of this

research (see Chapter 1), *thinking, showing and demonstrating* graduate attributes.

Barnett (2004) comments:

I want to suggest, however, that the idea of skills, even generic skills is a cul-de-sac. In contrast the way forward lies in construing and enacting pedagogy for human being. In other words, learning for an unknown future has to be learning understood neither in terms of knowledge or skills but of human qualities and dispositions. Learning for an unknown future calls, in short, for an ontological turn (Barnett, 2004, p.247).

I have come to realize through this research process, that graduate attributes are best enabled if students have the specific traits, dispositions/attitudes to do so. I see a disposition as a way of *being* and a trait as an *aspect* of a disposition and form a student's structure. I came to the latter realization on disposition, while observing and gaining feedback on the experiences of 2<sup>nd</sup> and 3<sup>rd</sup> year students within TSBE, who had been 'exposed' to varying pedagogical approaches and philosophical approaches of educators.

In developing *The Model of Graduate Attribute development*, I have often reflected on my personal learning journey and various student and educator conversations I have had along the way. When I read the work of Barnett, I realized that my view of traits and dispositions is akin to his qualities and dispositions. In this way I have moved to an ontological stance where I see a student's 'being' is integral to graduate attribute development and to students developing a sense of identity. In critical realist terms I would locate Barnett's various qualities and dispositions as

‘elements of a student’s structure (Sayer, 2000) (see 4.2.1). I pause to note how Barnett distinguishes between qualities and dispositions:

Dispositions are ‘those tendencies of human beings to engage in some way with the world around them ... they are forms of energy ... they furnish a will ... they form human beings in a fundamental way’ (2009a p. 433). Qualities are ‘manifestations of dispositions in the world. They give colour and definition to dispositions ... they characterise an individual. They are an individual’s character, for example resilience, courage, respect for others ...’ (2009a, pp. 433-434).

This could be considered a radical move away from the literature considered in developing the postulates, from viewing graduate attributes as skills and lists of competencies, towards an ontological perspective which focuses on the traits and dispositions (elements of a student’s structure) a student needs to increase their potentiality for graduate attribute development and to build capability and a sense of self (Barnett, 2004; D’All Alba & Barnacle, 2007). As Barnett (2010) states:

‘The main educational challenge in a world of uncertainty is that neither knowledge nor of skills, but of *being*’ (p. 61 original emphasis).

Such a notion of ‘being’ is captured by others who speak of the important role student identity plays in self-improvement and development (Layder, 2004; Oyserman 2004; Simon, 2004) (and see Chapter 3). Student identity is pivotal in the development of a model of graduate attribute development, highlighting the need for educators and students to work in partnership, to support an individual

student's ability to shape, apply and adapt the self to 'the needs of a particular role; not only once, but many times throughout life' (Daniels & Brooker, 2014 p.69). If educators use this ontological approach, then higher education may not be seen merely as a process of obtaining a qualification but as the start of a 'personal voyage of human becoming' (*ibid.*) in which new relationships with the world are forged, and then when a student reports developing confidence in their own ability to 'do' graduate attributes, this may well have to do with an ontological change in the student.

If this ontological shift occurs we may see the model operating consistently where students are provided with an opportunity to not only gather and manage information, but to 'decompress it, to break its code ... by moving through the layers of knowledge, intelligence, understanding and wisdom', to what Hart calls the transformation of the student (2001, p.X). Such transformation is possible when educators foster capability and satisfaction through learning experiences that include education of the mind and the heart, balance intuition with intellect, mastery with mystery and cultivate wisdom over the mere accumulation of facts (Hart, 2001 p. x) (see Chapter 1).

This process of transformation is explained in another way by Heath (1964). He sees students being capable of using their individuality in ways that are beyond their pre-existing endowments, by gaining deeper satisfaction from 'the ingredients of their raw life' (Heath cited in Jones, 2007, p.230). Exploring the *raw life*, may be seen as educators creating *opportunity* for students. These students are perhaps

currently bound to the reality of their world, and not challenged, to find a deeper sense satisfaction in their learning experiences. To support student transformation, where they can further their capability and sense of identity through graduate attribute development, requires educators shifting away from the underlying assumption that there is a common structure fundamental to the ability to handle different concepts and different contexts, to considering what a student thinks and feels about what is taught and *how* to make the best use of knowledge gained (Neergaard, 2012, p.2).

Additionally, for students to harness their potentiality, in terms of graduate attribute development, the shift may be to *positioning* attributes in what Dall’Alba and Barnacle refer to as the lived experience of the student (2007, p. 683), allowing students to go into a learning experience rather than moving on from it (Hart, 2001) (see 1.1), and perhaps responding to student concerns that:

‘Traditional units propose that I think in a certain way’ (Student ENN239).

What educators will then be challenged to do as part of this ontological shift is undertake a critical examination of their mental prototypes, in terms of what they construe as effective/appropriate pedagogy (Krueger, Hansen, Michi & Welsh, 2011). In the context of entrepreneurship research, Neergaard reminds us (see 3.3.1) that what we teach and *how* we teach reflects deep beliefs about the nature of the ‘unit’ [my emphasis], but also how it is best learned (2012, p.1). Such a shift in ontological perspective also necessitates educators and students alike to accommodate different perspectives. This may involve educators and students

altering their collective habits of thought, which are at the core of stabilising our personal identity (Mezirow & Taylor 2009).

As noted in 6.1 and 6.2, there was evidence in this research of a different ontological perspective towards student learning being present (as discussed in 6.1), but not consistently nor extensively. For the 'light bulbs' to be fully illuminated (see 2.1), through producing and maintaining specific structure structures, may require educators adopting a change in ontological perspective, providing transformative learning experiences drawing upon the repository of *optimal conditions* offered in *The Model of Graduate Attribute Development* (see figure 6.3).

Yet at the same time, reality also suggests any shift in perspectives, and awareness of self and the world, offers challenges to both educators and students; thus reinforcing the need for robust learning partnerships (Belton, 2009, p.xi). Achieving an ontological shift will see the student *being* at the core of the learning experience. When we see this model operating, the environment encourages students to develop their sense of identity, and become more capable *beings*, they are encouraged to be curious and *linger* a while (see Chapter 2.0)

## **6.5 CONTRIBUTIONS TO THE HIGHER EDUCATION LITERATURE**

This study represents a major departure from traditional approaches to the investigation of graduate attribute development in higher education. However, by utilizing new theories and methods, a new set of insights have been developed which may add to the body of knowledge about what needs to exist for a student to

think, learn and demonstrate specific graduate attribute development. This research provides a response to Neergaard & Ulhøi (see 1.6.1), who argue for the need to develop concepts that will help our understanding of social phenomenon in their natural settings (2007, p.4).

Additionally it is hoped this study helps to explain the factors and their effects that may account for *transformation* in students by way of graduate attribute development (Welsh & Dehler, 2007), and add to the paucity of literature on the potential benefits of introducing uncertainty in to the learning environment as a means of achieving good educational outcomes (Jones, 2009).

The study also makes a valid contribution to what Oliver attests (2013) as the under-researched area of *what the student does* in integrating learning experiences, and knowing what they know, *within and beyond* the formal curriculum. The contribution (as noted in Chapter 2), is that it adds to the few studies attempting to identify and describe the structures, mechanisms and conditions through which graduate attributes are developed (Wynn & Williams, 2012; Tsoukas, 1989). This research adds to this small body of literature and offers some broader feedback, through mixed-method data collection, on the nature of graduate attribute development (Bierbaum, 2007).

At present within the graduate attribute development literature, no framework (consistent with the broader higher education framework) has been developed to explain graduate attribute development. Therefore, the decision made to return to



a variety of seminal works, regardless of their domain of origin, would seem well justified. As a result, the theoretical concepts used throughout this study have accepted status in the broader field of higher education and care has been continually taken to ensure that at all times any such concepts have been applied within this study in a way consistent with their usage in the broader domain of higher education (Jones, 2009).

As the literature suggests individual students are largely not considered in terms of the way key structures can be altered, *developed*, *increased* or *examined* as a result of the student's interaction with the learning environment to foster identity and capability. Through this interdisciplinary approach, where combinations of knowledge and explanatory models have been considered (Danermark et al. 2002), a plausible explanation as to why some students develop graduate attributes whilst others fail to do so, or do to a partial extent has been presented.

## **6.6 CONTRIBUTIONS TO PRACTICE**

The model shows how student capability and sense of identity may emerge through graduate attribute development, when *optimal conditions* exist to produce and maintain the structures identified to support student potentiality.

Students, identity and capability have the potential to emerge through 'transformative' learning experiences where students work in partnership with educators, to find their place of *being* in the learning environment. This process occurs both as the students face inward towards their studies in which the students

are steeped, and then increasingly outwards towards the workplace as a professional identity starts to emerge through learning and assessment experiences that prepare them for the ill-defined problems and challenges of the world.

As explored in 4.2.1, structures may be described as a way of being or deep characteristics or traits and dispositions of a student. Student traits and dispositions are ontologically different to graduate attributes which are commonly articulated as lengthy statements of skills and competencies, while traits and dispositions emerge in the student through personal *change* or when potentiality has been unleashed. If educators consider substituting traits and dispositions', by way of the structures identified in this model of graduate attribute development, there would be significant implications for curriculum development and pedagogical approaches, specifically building the specific 'structures' into the curriculum.

As Barnett (2009a) states 'dispositions form human beings in fundamental ways' (p.434), so, building ways of fostering dispositions into the curriculum will alter and shape students to take up specific stances in communication, problem-solving and social responsibility. Barnett (2009b) makes the important point that dispositions and qualities are 'both facets of human being that are necessarily implications in a pedagogical relationship in higher education' (p.434). Educators need to explore this pedagogical relationship and 'tease out' ways in which they can implement it to incorporate the specific traits and attitudes they want to 'cultivate' in their students. These traits and attitudes are presented as structures of students in figure 6.3.

If one considers traits and dispositions by way of structures that may enable graduate attribute development, a relationship opens up between student capability and identity and the traits and dispositions. This is because the latter are fostered as part of the process of student change that take place as identity and capability emerge as potentiality through the structures that are produced and maintained. During this development of student identity and capability, the structures are fostered or shaped, for example:

*A student's ability to examine the fitness of their routines may be improved when they have frequent opportunities to put pressure on the learning environment when the conditions of formative and summative assessment, reflexivity and co-reflexivity of group processes and opportunities to 'stretch' capabilities in a group context are in place.*

This model proposes a relationship between the emergence of identity and capability as a student's potential is unleashed as structures are produced and maintained that may enable graduate attribute development.

### **6.7 LIMITATIONS OF THIS RESEARCH**

This study was conducted through the lens of transcendental realism. As such, the knowledge developed, while considered real is still held to be fallible. Realism holds that it may not be possible to observe every permutation relating to the generative mechanism. This study simply sought to confirm or disconfirm a model of *graduate attribute development* by finding support (or otherwise) for a series of postulates within the context of discovering a range of contingent conditions. It was not the aim of the study to 'test' a theory, but rather to develop a model for others to test.

That model is now developed and available for testing in future studies (Moore & Upcraft, 1990).

From an alternative perspective, the ontological approach employed imposes its own set of limitations; I would not expect another researcher who chose to investigate the same phenomenon using a different approach, who gathered different data and analysed it differently, to draw the same conclusions. Of critical importance was the need to avoid committing the epistemic fallacy (Sayer, 2000) whereby scientific knowledge is derived only from what is directly given or observable in the Empirical domain. Consequently, attention was given to what was *possible* using the process of retroduction within the context of a stratified reality. Perhaps Danermark et al. (2002, p.74) best sums up the approach used here and its limited need for generalization:

An overall aim of science is to explain events and processes. To explain something implies (from the perspective of critical realism) first describing and conceptualizing the properties and the causal mechanisms generating and enabling event, making things happen ... and then describing how different mechanisms manifest themselves under specific conditions. This kind of investigation requires a methodological approach based on abduction and retroduction, and breaking with the so called Popper-Hempel model of scientific explanations.

Explained another way, this study has the basis of its findings in the transfactual conditions it has explored. Danermark et al. (2002, p. 77) go on to say 'according to the realist concept of generality, scientific generalization largely refers to

transfactual conditions, to the more or less universal preconditions for an object to be what it is'. Such comments build on Bhaskar's (1989, p.227) view that 'scientifically significant generality does not lie on the face of the world, but in the hidden essence of things'. That said, whilst much of the variance in the landscape has been unearthed, it is more than quite likely that more remains to be discovered (Jones, 2007 p.251). A final reminder from Tsoukas is as the event under investigation has occurred an outcomes-based explanation provides a logical approach to the learning about the possible presence of generative mechanisms and their transfactual conditions (1989). However, this may potentially reduce the acceptance of the findings by those that evaluate the validity and reliability of research alternative ways. Therein lays a research limitation, but perhaps more accurately a research challenge, that of gaining 'legitimacy for the approach' (Jones, 2007 p.251), findings and future research opportunities, that arise from this study in the mainstream higher education literature.

#### **6.8 FUTURE RESEARCH OPPORTUNITIES**

One of the main motivations for the research was that the outcomes be useful, applicable and relevant to educators and policy makers in the higher education context. As a practical means of describing what combination of knowable factors related to individual students, their educators and the conditions they interact with and create, many of which are largely invisible in nature, are capable of enabling or suppressing the development of graduate attributes in higher education, critical realism provides a potential methodological tool. The findings from this research

offer a new understanding of what a learning environment needs to look like to support students to *think, show and demonstrate* graduate attributes and may significantly re-shape thinking around transformational learning approaches to maximize a student's potential for graduate attribute development and an increase in capability and sense of identity.

The model is offered for others to test to determine the applicability of the structures, causal powers and '*optimal*' conditions identified to other student cohorts (across disciplines and in traditional, experimental and intensive learning environments), to determine to what extent this model applies to other contexts, if the '*optimal*' conditions described in this study are equally important elsewhere. This is particularly significant if educators and higher education policy makers are to embrace an ontological shift in order to and respond to the request for educators to provide a model for graduate attribute development.

So, graduates attributes are perhaps then best considered as patterns of meaning that are reproduced to construct a certain degree of predictability about social life (Jones, 2009 p.95). If attributes are understood in this way, it is possible to consider the ways in which educators are engendering certain types of behaviour, and promoting certain attitudes and behaviours or practices in students, often in very tacit ways (Jones, 2009).

### 6.9 CONCLUSION

In summary the model represents a combination of research findings and outcomes of the process of component identification and theoretical synthesis. It reflects the findings from a specific cohort of students using self-report data, and from educators employing traditional, experiential and intensive approaches to learning in 2<sup>nd</sup> and 3<sup>rd</sup> year units in business management education. It incorporates the researcher's personal reflections, the observations and experiences of students and educators in various learning situations. It considers the various thematic responses from students who have been engaged in either traditional, experiential or intensive approaches to learning, noting that traditional approaches to learning do not appear to support the development of key student structures to enable graduate attribute development. It is the belief of the researcher that the model goes some way to meeting the needs of the individual, but reality suggests that educators are limited to the extent that they can respond to individual student needs and therefore the researcher contends it is unlikely to see the model occurring beyond the unit level, whilst also acknowledging that the model may 'operate' or 'not operate' in various higher educational settings (Crebert et. al. 2004).

Research into the social world also reminds us that the causal powers producing 'social events', for example graduate attribute development are in a much great state of flux then those of the physical world (as human structures change much more readily than those of, say, a leaf) (Bhasker, 1975). This change may give rise

to the model not working, because the social world incorporates perceptions, reflexivity and actions of human beings (students and educators) and social collectives (groups) engaged in social experience, innovation and learning which in themselves may bring about change which may not have been anticipated (Wad, 2001). The model may also not work if a causal power's effect on a structure does not occur if the student does not have the *propensity* to be affected.

In closing it is *apropos* to reflect upon the research journey and the importance of the retroduction process in building a model of graduate attribute development. The following epilogue gives insights into the ontological and epistemological awareness and changes experienced by the researcher through the experiences of observations, to thoughts, to actions to structures.





## Epilogue

*This doctoral process has been an evolutionary journey, and through this journey I have become better equipped to share my contemplations about what needs to exist in today's learning environment for students to think, learn and demonstrate graduate attributes. On my journey on the 'road less travelled', I have come to realise this journey does not have a destination, as it is the journey that itself is the destination. It is by travelling through philosophical and epistemological realms that I have learned and evolved cognitively and emotionally.*

*Ontologically, I have grown in the sense I have come to see how important and inter-related the qualities and dispositions of students are to increasing their potential for graduate attribute development. In this way, I have moved to an ontological stance where I see a student's being as integral to graduate attribute development, to building capability and a sense of identity. I have strengthened my beliefs about the importance of student transformation as a common narrative between educators and students and where opportunities for students to linger and get into the learning experience are commonplace.*

*Epistemologically, I have learnt much particularly about critical realism, graduate attributes and higher education. I have grown as a critical realist recognising the iterative value of the process, and have learnt that much of what one learns in the research process goes beyond what one actually uses, nonetheless is in the background often illuminating one's thinking.*

*As I have written I have given myself permission to find and free my own voice, and to write in a style and format that is clear, honest and academically rigorous. Part of freeing my voice was owning my learning and research, authorising myself to say 'This is what I think is happening or I believe is occurring, based on ...' I have acknowledged the diverse nature of the learning environment and the need for much patience in my writing as I moved from one postulate to the next, gaining some confidence in the components of the proposed model. I felt that during my journey I too had seen 'not merely what is there, but what is happening there (Sears, 1980 p. 223).*

*When I used retroduction to think back from an observable event to the domain of the Real, the causal powers and generative mechanisms became more obvious to me. I began to see the potential they had to produce a 'structural' change in a student, when specific conditions were at play. At the beginning of this study, the eventual 'components' were missing, however, retroduction and associated process of theoretical redescription, have allowed 'The Model of Graduate Attribute Development' components to be confirmed. The model ultimately emerges as a repository of student-considered optimal conditions available for educators to test as they engage with a student's 'being'.*

*I have offered a glimpse into actual student learning and assessment experiences, where various pedagogical approaches have been employed. Although a glimpse, I have come to more clearly understand and articulate the multitude of complexities facing educators and students, as higher education struggles with its 'massification',*

*whilst at the same time responds to the needs for graduates to be equipped to deal with the 'messiness' of the real world. If this model helps explain graduate attribute development, and offers a valid explanation of why some students develop graduate attributes, (whilst others fail to do so, or do to a partial extent), then this road has been well travelled.*



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**Appendix 1**

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**University of Tasmania Generic Attribute Skills**

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## Appendix 1: University of Tasmania Generic Attribute Skills

### Policy on Generic Attributes of Graduates of the University of Tasmania

In most universities there is formal recognition of the generic outcomes expected of graduates, regardless of the specific disciplines or professional courses they have studied. This is a response to expectations that graduates operate in and contribute to society in ways which extend beyond the formal university qualification they have received. It is also a response to consistent calls by employers in all fields for graduates who have a range of skills and capabilities not directly related to the discipline or professional area in which they have studied.

The attached list is recommended as the Generic Attributes of Graduates from the University of Tasmania. It is important that the list acts as a core for all disciplines and professional areas. There is scope for disciplines and professional areas to add to the list any specific attributes or skills which are given particular emphasis in that discipline or professional area. It is also recognised that various disciplines and professional areas will emphasise some of the attributes more than others. The aim is for the list to be sufficiently generic to complement lists of skills which have already been adopted in some disciplines and professional areas.

While the attributes and descriptors will be a common core across all areas, the exemplars can be tailored to cover different emphases and interpretations.

The Generic Attributes of Graduates of the University of Tasmania will act as a common set of outcomes expected of all graduates of the University. As such, it will appear in University documentation and be used as a way of promoting the University's overall offerings and approach to employers and students.

Once accepted, the policy on Generic Attributes of Graduates of the University of Tasmania will act as a guiding statement for course development. It will be necessary to ensure that all of the generic attributes are addressed in some way across all courses taught in the University and it will be one of the criteria to be met when new courses are approved and existing courses are reviewed. While Faculties/Schools will need to consider how the generic attributes are covered across an entire course, there will not be an expectation that every unit will address all attributes. For many courses offered within the University, it will be a case of articulating what already happens.

The University's statement on generic attributes will provide transparency and accountability to students. It opens the possibility to introduce ways in which students can demonstrate to employers how they have developed these attributes. This could be achieved through strategies such as students compiling portfolios and/or by the University including statements on academic transcripts.

*Approved by Academic Senate  
Meeting Number: 3/2001 Date: 15/06/2001*

### Generic Attributes of Graduates of the University of Tasmania

ATTRIBUTE	DESCRIPTOR	EXEMPLARS
<b>Knowledge</b>	Graduates will have an in-depth knowledge in their chosen field of study and the ability to apply that knowledge in practice. They will be prepared for life-long learning in pursuit of personal and professional development	<ul style="list-style-type: none"> <li>• Apply technical and information skills appropriate to their discipline or professional area;</li> <li>• Use a wide range of academic skills (research, analysis, synthesis etc);</li> <li>• Understand the limitation of, and have the capacity to evaluate, their current knowledge;</li> <li>• Develop a broad knowledge base and respect the contribution of other disciplines or professional areas;</li> <li>• Identify, evaluate and implement personal learning strategies;</li> <li>• Learn both independently and cooperatively;</li> <li>• Learn new skills and apply learning to new and unexpected situations;</li> <li>• Recognise opportunities.</li> </ul>
<b>Communication Skills</b>	Graduates will be able to communicate effectively across a range of contexts	<ul style="list-style-type: none"> <li>• Demonstrate oral, written, numerical and graphic communication;</li> <li>• Use the medium and form of communication appropriate for a given situation;</li> <li>• Present well-reasoned arguments, using technology as appropriate;</li> <li>• Access, organise and present information, particularly through technology-based activity;</li> <li>• Listen to and evaluate the views of others.</li> </ul>
<b>Problem-solving Skills</b>	Graduates will be effective problem-solvers, capable of applying logical, critical and creative thinking to a range of problems. They will have developed competencies in information literacy	<ul style="list-style-type: none"> <li>• Identify critical issues in the discipline or professional area;</li> <li>• Conceptualise problems and formulate a range of solutions;</li> <li>• Work effectively with others;</li> <li>• Find, acquire, evaluate, manage and use relevant information in a range of media.</li> </ul>
<b>Global Perspective</b>	Graduates will be able to demonstrate a global perspective and inter-cultural competence in their professional lives	<ul style="list-style-type: none"> <li>• Demonstrate an awareness of the local and global context of their discipline or professional area;</li> <li>• Function in a multicultural or global context.</li> </ul>

<b>Social Responsibility</b>	Graduates will act ethically, with integrity and social responsibility	<ul style="list-style-type: none"> <li>• Acknowledge the social and ethical implications of their actions;</li> <li>• Appreciate the impact of social change;</li> <li>• Be committed to access and equity principles in their discipline or professional area, and society in general;</li> <li>• Demonstrate responsibility to the local community, and society generally.</li> </ul>
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**Appendix 2**

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**Tasmanian School of Business and Economics (TSBE)**  
**units within this study**  
**(BMA218; BMA236; BLD202; BMA341 & BLD302)**

**Appendix 2: Tasmanian School of Business and Economics (TSBE) units within this study**



BMA 218

Planning and Running Sports and Recreation Events

Semester 2, 2014

THIS UNIT IS BEING OFFERED IN:

HOBART and LAUNCESTON

Teaching Team:

Dr Michael Crow

CRICOS Provider Code: 00586B

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## Contact Details

<b>Unit Coordinator</b>	Michael Craw
<b>Campus</b>	Sandy Bay
<b>Room Number</b>	506, Commerce Building
<b>Email</b>	mjcraw@utas.edu.au
<b>Phone</b>	62268527
<b>Consultation Time</b>	By appointment

### Unit Description

This unit investigates the planning and running of sports and recreation events (SRE). It focuses on the planning, implementation and management of SRE that engage community, including aspects such as event planning; event promotion; event sponsorship; recruiting and managing volunteers; event risk management and event facilitation.

The financial elements of sports event management will be investigated such as: the ability to plan; develop and implement budgets and profit /loss statements.

The ability to effectively integrate and satisfy the needs of external stakeholders such as sponsors; media and community will be examined.

This unit is embedded in experiential learning and is supported with accepted theory & practice in planning and running sports and recreation events. Students are immersed into the learning outcomes with time spent in preparing for and completing assessment tasks, time spent in general study/ event management delivery and reflection.

Students will consider how and why events community build. Investigating how the event promotes health and well being, and how risks can be managed will be carried out in this unit as well.

Identifying why sports and recreation events are an important element for building prosperous progressive communities will be at the philosophical centre of this unit.

Students are expected to work inclusively in all learning activities.

### Prior Knowledge &/or Skills OR Pre-Requisite Unit(s)

None.

### Enrolment in the Unit

Unless there are exceptional circumstances, students should not enrol in this unit after the end of week two of semester, as the Tasmanian School of Business and Economics (TSBE) cannot guarantee that:

- any extra assistance will be provided by the teaching team in respect of work covered in the period prior to enrolment; and
- penalties will not be applied for late submission of any piece or pieces of assessment that were due during this period.

## Intended Learning Outcomes and Generic Graduate Attributes

Intended Learning Outcomes		Assessment Methods	Graduate Attribute Outcomes
In this unit you will learn to:	In assessing this unit I will be looking at your ability to:		
Implement sports recreation event methodology and apply this methodology in an event management activity:	Use sports and recreation event management theories and proven success practices for the purpose of developing and implementing event plans including things like sponsorship, event planning and risk management	Operation Plan The Event	<b>Knowledge:</b> Extensive functional knowledge of sports and recreation event management and its application to community.  Functional lifelong learning for professional and personal career aspirations particularly sports management.  <b>Communication:</b> The ability to engage in persuasive, succinct written discussions to communicate and defend a position held. Oral communication in a succinct and logical manner.  Written communication skills to create clear and detailed analyses and non-biased recommendations for front line managers, executives and CEOs.  <b>Problem Solving:</b> The ability to apply logical, critical and creative thinking to complex sports and recreation event management related problems.  A critical grasp of theoretical frameworks and practices and the ability to integrate and apply those frameworks to problem resolution in a sports and recreation event management context.  The ability to locate, analyse, evaluate and effectively use information from a range of media.  <b>Social Responsibility:</b> An awareness and consideration of the legal issues is demonstrated along with ability to apply ethical considerations in support of the event's successful management and facilitation.
	Apply relevant theory, principles and practices that measures the successful management of an event such as financial documents	Consultant's Report The Event	
Use strategic processes involved in event management operations and connect them to the facilitation of a sports and recreation event:	Identify the strategic goals of the event with the aim of outlining the strategic direction of the event meeting needs of external stakeholders; sponsors; media; community and fiscal goals	Operation Plan	
	Apply research knowledge and insight in the facilitation of an event linking them to community	Consultant's Report Observations Checklist	
Propose and justify integrated event strategies and recommendations to address identified problems or improve event practices:	Solve sport and recreation event problems utilising sports event theory and practices	Consultant's Report The Event	
	Reveal the practices used to best conduct the event that are linked to accepted success strategies	Consultant's Report The Event	
Outline the processes involved in sports and recreation event planning and legal/ethical executions:	Write clearly, logically & professionally using the lexicon/language of sports and recreation event management for the purpose of developing and implementing acceptable event plans	Operation Plan Consultant's Report The Event	
	Communicate accurately in a real world business situation such as financial documents of the event and as a result of event reflection documents such as event evaluation/observation checklist		



**TASMANIAN SCHOOL OF  
BUSINESS & ECONOMICS**

## **UNIT OUTLINE**

Read this document to learn essential details about your unit. It will also help you to get started with your studies.

**BMA236  
Festival and Events Management**

**Semester 2, 2014**

**THIS UNIT IS BEING OFFERED IN:**

**HOBART/BURNIE**

**Taught by:**

**Dr Anne Hardy and Mr Clayton Hawkins**

CRICOS Provider Code: 00586B

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**BMA236, Festival and Events Management****3****Contact Details**

**Unit Coordinator:** Dr Anne Hardy  
**Campus:** Hobart  
**Room Number:** 313 Commerce Building Sandy Bay campus  
**Email:** Anne. Hardy@uats.edu.au  
**Phone:** 6226 7687  
**Fax:** 6226 2808  
**Consultation Time:** By Appointment

**Lecturer:** Mr Clayton Hawkins  
**Campus:** Cradle Coast  
**Room Number:** A1.10  
**Email:** Clayton.Hawkins@utas.edu.au  
**Phone:** 6430 4982  
**Consultation Time:** By Appointment



## BMA236, Festival and Events Management

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**Unit Description**

Festivals and events play a major role in our society, by uniting people, and stimulating visitation to tourism destinations. The skills needed to manage successful events are wide reaching, as they involve: consideration of the broader environment within which special events and festivals are located; marketing and coordination skills; and understanding of the events' relationship with the destination and the broader tourism industry; and consideration of the events' direct and indirect economic, social and cultural impacts.

This unit aims to equip students with knowledge about events management and how events relate to industries including, but not limited to, tourism and leisure. The unit will include local, national and global dimensions of the events sector and help students comprehend the scale and impact of events and the organisations that manage them.

**Prior Knowledge &/or Skills OR Pre-Requisite Unit(s)**

There are no prerequisites for this unit.

**Enrolment in the Unit**

Unless there are exceptional circumstances, students should not enrol in this unit after the end of week two of semester, as the Tasmanian School of Business and Economics (TSBE) cannot guarantee that:

- any extra assistance will be provided by the teaching team in respect of work covered in the period prior to enrolment; and
- penalties will not be applied for late submission of any piece or pieces of assessment that were due during this period.

**When does the unit commence?**

The unit commences officially in Week 1 of Semester 2, 2014. Materials relevant to the unit will be made available on MyLO one to two weeks prior to the commencement of the semester.

BMA236, Festival and Events Management

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**Intended Learning Outcomes and Generic Graduate Attributes for BMA236**

<b>Learning Outcomes:</b> You will learn about:	<b>Assessment Criteria:</b> In assessing this learning outcome I will be looking at student ability to:	<b>Assessment Methods</b>	<b>Graduate Attribute Outcomes</b>
Knowledge of the range, nature and process for hosting festivals, events, meetings and conventions.	Explain different types and purposes of events.	Report 1	<p>The assessments and teaching activities in this unit have been designed to develop the following graduate attributes in students:</p> <p><b>Existing Event Research Report</b></p> <p>Knowledge (2) – Intermediate levels of knowledge specific to tourism and events.</p> <p>Communication (2) – Written communication skills of a quality and manner, appropriate to real world festival and event situations and audience needs.</p> <p>Problem solving (2) – Effective problem-solving skills including the ability to apply tourism related theories, models and methods and logical thinking to a range of multi-dimensional festival and event related problems. An awareness of when additional information is needed and the capacity to locate, analyse and use it.</p> <p>Social Responsibility (2) – social responsibility through consideration of social groups in festival and event practices.</p>
	Compare and contrast the sectors that provide and manage events.	Report 1	
	Analyse specific issues involved in the management of events.	Event Bid presentation Event Bid Report	
	Compile a bid for hosting an event.	Event Bid Presentation Event Bid Report	
How events relate to tourism and leisure industries.	Discuss and explain the relationship between events and tourism and leisure.	Report 1 Event Bid Report	<p><b>Event Concept Submission &amp; Presentation</b></p> <p>Knowledge (2) – Intermediate levels of knowledge specific to the application of knowledge to the process of hosting an event.</p> <p>Communication (2) – Presentation skills of a quality and manner appropriate to festival and event management.</p> <p>Problem solving (2) – Effective problem-solving skills including the ability to observe impacts of events to inform their analysis.</p> <p>Social responsibility (2) – An awareness and consideration of the interests of various cultures and nations involved in tourism and the ability to apply ethical values to tourism decision making on events.</p>
The economic, social and environmental impacts of events both beneficial and detrimental.	Explain the importance of events on a local, regional, national and international scale.	Report 1	
	Research and explain the impact of events on local communities and environments both positive and negative.	Event Bid Report Presentation	
	Explain the need to manage impacts to optimise the positive and minimise the negative impacts.	Event Bid Report	



BLD202  
Foundations of Entrepreneurship

Semester 1, 2014

THIS UNIT IS BEING OFFERED IN:

HOBART

Teaching Team:

Dr Colin Jones

CRICOS Provider Code: 00586B

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## Contact Details

<b>Unit Coordinator</b>	Dr Colin Jones
<b>Campus</b>	Sandy Bay
<b>Room Number</b>	111, 1 College Road
<b>Email</b>	Colin.Jones@utas.edu.au
<b>Phone</b>	6226 1937
<b>Fax</b>	6226 7390
<b>Consultation Time</b>	By Appointment

### Unit Description

Entrepreneurship is a way of looking at business that is focused on opportunities, creativity and innovation. It is also about having a passion for doing the things that are important to you, be they related to business or not. It is about challenge and persistence. It is about the development of an enterprising mindset, from which you can create the opportunities for your satisfaction. *To successfully complete this unit, you will be required to make a contribution (physically, intellectually and emotionally) that may be higher than you have previously made in your past studies.*

Entrepreneurship is not for the faint-hearted, the timid, those who cannot cope with ambiguity or those who want black and white answers. It is for individuals who are self-motivated, resourceful and persistent. It is for those who have a sense of humour, who have a passion for implementing new ideas, who can learn from failure and bounce back from it, and who are willing to take calculated risks in their entrepreneurial endeavours. In short, it is a process of self-discovery.

Within every entrepreneurship unit you will be required to participate in activities that *conceive*, *create*, and *capture* value as well as *critique* your efforts to do so. Known as the 4Cs, these activities will allow you to place yourself at the intersection of theory, practice and personal knowledge gain through which your understanding of your entrepreneurial capabilities will be determined.

### Partnership

The University and the Tasmanian State Government entered into a Partnership Agreement in November 2000 that acknowledged 'the important role which higher education plays in the social and economic development of the Tasmanian community.' The Entrepreneurship Major is a tangible result of this partnership, and the University acknowledges the support of the Tasmanian State Government, through the Department of Economic Development, in its introduction.

### Prior Knowledge &/or Skills OR Pre-Requisite Unit(s)

None specified.

### Enrolment in the Unit

Unless there are exceptional circumstances, students should not enrol in this unit after the end of week two of semester, as the Tasmanian School of Business and Economics (TSBE) cannot guarantee that:

- any extra assistance will be provided by the teaching team in respect of work covered in the period prior to enrolment; and
- penalties will not be applied for late submission of any piece or pieces of assessment that were due during this period.

## Intended Learning Outcomes and Generic Graduate Attributes

Intended Learning Outcomes		Assessment Methods	Graduate Attribute Outcomes
<i>In this unit you will learn:</i>	<i>In assessing this unit I will be looking at your ability to:</i>		
... theories and concepts related to the process and context of entrepreneurship:	1a. Demonstrate your knowledge of the fundamental concepts and theories to be used in the unit.	Pre Workshop Test	<p>The assessments and teaching activities in this unit have been designed to develop the following graduate attributes in students:</p> <ul style="list-style-type: none"> <li>• <b>Knowledge</b> related to entrepreneurship and most importantly, yourself, will be developed through a student-centred process that requires students to manage and reflect upon your own learning, assist in the development and application of knowledge within a team and workshop environment. This will be assessed through the pre workshop test, workshop presentations and games.</li> </ul>
	1b. Demonstrate your knowledge of how the fundamental concepts and theories relate to everyday life.	Workshop Presentations	
	1c. Demonstrate your ability to apply your knowledge of the fundamental concepts to a complex situation.	Workshop Game	
	1d. Demonstrate your ability to apply your knowledge of the process and context of entrepreneurship to create new value.	Value Creation Challenge	
... about your suitability to being entrepreneurial – specifically your ability to cope with failure:	2a. Reflect upon your success or otherwise in the game.	Workshop Game	<ul style="list-style-type: none"> <li>• <b>Communication Skills</b> will be developed across a range of media, including oral, verbal, written, visual that depend upon your ability to listen, understand, and empathise with members of your group. This will be assessed across workshop presentations and value creation challenge.</li> </ul>
	2b. Reflect upon your ability to work with others to generate and communicate in practice in a logical and coherent manner.	Workshop Presentations Value Creation Challenge	
	2c. Reflect on your ability to make sense of the process of entrepreneurship using the concepts and theories you've been introduced to.	Personal Learning Statement	
... how entrepreneurs use social media to conceive, create, and capture new value:	3a. Work with others to conceive, create and capture new value using social media.	Value Creation Challenge	<ul style="list-style-type: none"> <li>• An awareness of <b>global perspectives</b> and issues of <b>social responsibility</b> related to the process of entrepreneurship will be developed during discussion in the workshops.</li> </ul>
	3b. Take responsibility for your own contribution to your group's achievements.	Value Creation Challenge	



**BLD302**  
**ENTREPRENEURSHIP AND INNOVATION**

Semester 1, 2014

THIS UNIT IS BEING OFFERED IN:  
HOBART and LAUNCESTON

Teaching Team:  
Dr Colin Jones

CRICOS Provider Code: 00586B

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## Contact Details

<b>Unit Coordinator</b>	Dr Colin Jones
<b>Campus</b>	Sandy Bay
<b>Room Number</b>	111, 1 College Road
<b>Email</b>	Colin.Jones@utas.edu.au
<b>Phone</b>	6226 1937
<b>Fax</b>	6226 7390
<b>Consultation Time</b>	By Appointment



### Unit Description

An opportunity represents the *potential* to do something better or differently. It is analogous to a caterpillar that dreams of becoming a butterfly. An innovation represents the successful exploitation of an opportunity. It is akin to the butterfly. The metamorphosis from opportunity to innovation takes place through the process of commercialisation. Only a small number of opportunities eventually become commercially successful innovations.

This unit is designed to facilitate your understanding of the process of opportunity exploitation. The learning activities used throughout the unit also provide you with an opportunity to reflect upon how you as an individual can successfully exploit an opportunity. The workshops used throughout this unit will provide a space for you to practise how to add value and also the opportunity to learn from interaction with your colleagues.

As within every entrepreneurship unit, you will be required to participate in activities that conceive, create, and capture value as well as critique your efforts to do so. Known as the 4Cs, these activities will allow you to place yourself at the intersection of theory, practice and personal knowledge gain through which your understanding of your entrepreneurial capabilities will be self-determined.

### Partnership

The University and the Tasmanian State Government entered into a Partnership Agreement in November 2000 that acknowledged 'the important role which higher education plays in the social and economic development of the Tasmanian community.' The Entrepreneurship Major is a tangible result of this partnership, and the University acknowledges the support of the Tasmanian State Government, through the Department of Economic Development, in its introduction.

### Prior Knowledge &/or Skills OR Pre-Requisite Unit(s)

BLD202 Foundations of Entrepreneurship

### Enrolment in the Unit

Unless there are exceptional circumstances, students should not enrol in this unit after the end of week two of semester, as the Tasmanian School of Business and Economics (TSBE) cannot guarantee that:

- any extra assistance will be provided by the teaching team in respect of work covered in the period prior to enrolment; and
- penalties will not be applied for late submission of any piece or pieces of assessment that were due during this period.

## Intended Learning Outcomes and Generic Graduate Attributes

Intended Learning Outcomes		Assessment Methods	Graduate Attribute Outcomes
In this unit you will learn:	In assessing this unit I will be looking at your ability to:		
... how to conceive, develop and express your ideas in a logical manner:	1a. Demonstrate your ability to write a concise business plan.	Written Plan Revised Plan	<p>The assessments and teaching activities in this unit have been designed to develop the following graduate attributes in students:</p> <ul style="list-style-type: none"> <li>• <b>Knowledge</b> related to entrepreneurship and most importantly, yourself, will be developed through a student-centred process that requires students to manage and reflect upon your own learning, assist in the development and application of knowledge as an individual and within the workshop environment. This will be assessed through the across all assessment items.</li> </ul>
	1b. Demonstrate your knowledge of the fundamental concepts and theories related to idea evaluation.	Evaluation of Plans Assumptions Research	
	1c. Demonstrate your ability to present an idea in a coherent manner.	Revised Plan	
... how to conduct research on the underlying assumptions related to the possible future development of an idea:	2a. Demonstrate your ability to discern the underlying assumptions present in other peoples' thinking.	Evaluation of Plans	<ul style="list-style-type: none"> <li>• <b>Communication Skills</b> will be developed across a range of media, including oral, verbal, written, visual that depend upon your ability to listen, understand, and empathise with the thinking of others within and outside the class. This will be assessed through the across all assessment items.</li> <li>• <b>Problem-Solving Skills</b> will be developed by applying your initiative, creativity, planning, and organising abilities to ensure you assist in the development of a range of strategies and solutions to the tasks you encounter. This will be assessed through the across all assessment items.</li> </ul>
	2b. Demonstrate your ability to identify key stakeholders and verify the underlying assumptions present in your thinking.	Assumptions Research	
	2c. Reflect on your initial assumptions and change them along with your ideas according to the research you complete.	Assumptions Research Revised Plan	
... to express how well you as an individual are suited to the process of stepping up to the challenge of being entrepreneurial:	3a. Reconcile your individual/collective resource profile to the nature of actual behaviours you have participated in or observed.	Revised Plan Book Discussion	<ul style="list-style-type: none"> <li>• An awareness of <b>global perspectives</b> and issues of <b>social responsibility</b> related to the process of entrepreneurship will be developed during discussion in the workshops.</li> </ul>
	3b. Take responsibility for your own actions across the required tasks set.	All Assessment Items	



## UNIT OUTLINE

Read this document to learn essential details about your unit. It will also help you to get started with your studies.

### **BMA341 Industrial Relations**

**Semester 2, 2014**

THIS UNIT IS BEING OFFERED BY:  
DISTANCE

**Taught by:**

Dr Karin Mathison

CRIICOS Provider Code: 005868

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**Contact Details**

<b>Unit Coordinator/Lecturer:</b>	Dr Karin Mathison
<b>Campus:</b>	Hobart (Sandy Bay)
<b>Room Number:</b>	Room 428, Commerce Building
<b>Email:</b>	Karin.Mathison@utas.edu.au
<b>Phone:</b>	+61 3 6226 2714
<b>Consultation Time:</b>	By appointment

**BMA341, Advanced Industrial Relations**

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**Unit Description**

This unit offers students an opportunity to pursue advanced study in the discipline of industrial relations (IR). Upon completion of the unit students will be able to identify and articulate contrasting theoretical approaches in IR, plan and contribute to a negotiation and identify and critically evaluate contemporary issues in IR with reference to theories of power and conflict.

The unit is multi-disciplinary in approach and spans the disciplines of sociology, politics, history, business and law. There is a strong focus on practical application of theoretical concepts in real-world situations. Assessment in the unit therefore includes identification and analysis of contemporary IR issues, a negotiation exercise and a major exploratory research project on a topical IR issue.

**Prior Knowledge &/or Skills OR Pre-Requisite Unit(s)**

BMA247 or BMA217

**Enrolment in the Unit**

Unless there are exceptional circumstances, students should not enrol in this unit after the end of week two of semester, as the Tasmanian School of Business and Economics (TSBE) cannot guarantee that:

- any extra assistance will be provided by the teaching team in respect of work covered in the period prior to enrolment; and
- penalties will not be applied for late submission of any piece or pieces of assessment that were due during this period.

**When does the unit commence?**

The unit will commence on Monday 14th July 2014.

The associated MyLO site will be available from Monday 7th July 2014.

**Intended Learning Outcomes and Generic Graduate Attributes for BMA341**

INTENDED LEARNING OUTCOMES		ASSESSMENT METHODS	GRADUATE ATTRIBUTE OUTCOMES
In this unit you will learn:	In assessing this unit I will be looking at your ability to:		
<b>Learning Outcome 1</b>  Distinguish between different theoretical approaches to industrial relations.	Distinguish between the major theories of the employment relationship.	Contemporary issue analysis	The assessments and teaching activities in this unit have been designed to develop the following graduate attributes in students.  <b>Knowledge:</b> Explain the major theories of the employment relationship as the basis for understanding industrial relations.
	Explain the roles, rights and responsibilities of key stakeholders in the employment relationship.	Research paper	
<b>Learning Outcome 2</b>  Identify contemporary issues and their impact upon the management of industrial relations in organisations.	Identify and critique contemporary issues in industrial relations.	Contemporary issue analysis	Apply the major theories in a number of contexts, focusing on the roles, rights and responsibilities of key stakeholders in the employment relationship.  <b>Communication Skills:</b> Communicate and defend an argument persuasively and succinctly in a variety of forms.
	Propose the application of industrial relations theories in practical situations.	Negotiation exercise Negotiation journal Research paper	
<b>Learning Outcome 3</b>  Collaborate with others, communicate effectively and reflect on personal learning.	Work constructively with others to complete a task.	Negotiation exercise	<b>Problem Solving Skills:</b> Think logically, critically and creatively to solve problems related to the practice of industrial relations.  Identify contemporary industrial relations issues and recognise potential issues in a business context.
	Communicate effectively in a variety of forms.	Negotiation journal	
	Reflect on personal learning.	Research paper	
<b>Learning Outcome 4</b>  Present an academic argument supported by academic literature.	Critically analyse a special topic relating to industrial relations theory and/ or practice.	Research paper	
	Locate and use appropriate academic sources.	Research paper	
	Present an argument in writing with adequate content, sound logic, and good grammar.	Research paper	

**Appendix 3**

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**Semi-structured interview questions:  
Educators**

## Appendix 3: Semi-structured interview questions: Educators

### EDUCATOR1

**Researcher (R): How would you describe your teaching philosophy?**

Educator (E): I guess my philosophy is founded in existentialism that emphasizes individual student existence, freedom and choice. To me an existentialist sees students as entirely free and must take responsibility for themselves and their learning. I emphasise that my students take action and have freedom to make their own decisions.

R: Can you tell me a bit more how this plays out in your approaches to learning and assessment?

E: I want students to think about and talk about their reality. I want them to consider what this means (you know theory) to their world. I try and ask them questions that use 'How'... like how does this relate to your experience? How do you feel about that? It is all about, well as I see it, linking theory to practice.

**R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?**

E: Lectures are obviously pretty passive but I make tutorials very active. So the experiential tutorials you developed for us in BMA 247 have encouraged students to be engaged. To think about things from multiple perspectives. To try new things out even if they don't get it right. I also want them to have some fun. Let's face it OB is all about human behaviour so we students experience and understand from these experiences is pretty darn important.

**R: In what ways do you develop graduate attribute skills? Can you give me examples of how you do this? (e.g. teaching episodes, assessment)?**

E: The lectures are pretty passive but students do add something for themselves.

**R: I'd be interested to know how this occurs?**

E: I ask questions of them – open ones – during the lecture. No one usually responds but I hope they are take-aways from the lectures that they think about for their exams. In tutes I use a lot of direct and indirect questioning to probe the students points of view.

**R: In what ways do you students become aware of the graduate attribute skills in a Unit?**



E: At the moment only through them being in the front of the Unit Outline. Think has been a bit of an oversight on my behalf... Uhh perhaps not aligning or talking about their significance in their learning. There is so much content that I am probably remiss in thinking about them more than perhaps a mechanism to achieve the subject outcomes.

**R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: Well we can't really. If we devoted say 50% loading to communication then we wouldn't be able to cover all the subject areas. We have an essay and case analysis where students have to use their problem-solving skills but I have to say social-responsibility isn't obviously given any attention.

**R: Another other comments?**

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.

## **EDUCATOR 2**

**Researcher (R): How would you describe your teaching philosophy?**

Educator (E): My approach is not to motivate or inspire but to encourage students to read, argue, talk and evaluate. I use lectures to show different sides of an argument and to encourage students to find sources. To try to focus on learning through inquiry.

**R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?**

E: Some people won't agree but I think the lecture theatre is a form of participation. I pose questions on slides – often ethical global issues which lead into debates and further exploration of the content in tutorials. I try and get students to think about reading as an 'active' experience. It can be if they are prepared to dive into what their reading and consider what it means to their world; to industry and to situations they may encounter in the workforce.

**R: In what ways do you develop graduate attribute skills? Can you give me examples of how you do this? (e.g. teaching episodes, assessment)?**

E: Students need to read, think and communicate which is an assessable part of the Unit. Speaking skills are so important and this means the preparation they put into their presentations. Interaction with the audience is considered an important element of how they develop their communication skills. In my unit the intensity builds. In other words they may be required to share or communicate for 10 minutes early on in the Unit and then it builds to 45 minutes at the end of the Unit. I think scaffolding is important for developing confidence in communication skills.

**R: I'd be interested to know how this occurs.**

E: I think what I need to emphasise here is the development of attributes is linked into the overall planning of a tourism project. So theories, discussions, debates, questions you know are all linked to the project planning process. I emphasise too the important of developing a graduate portfolio. A bit like a 'biscuit tin' that you can keep adding bits to as you progress through your degree. Most students want to know why... why a portfolio is important so we discuss at length what 'employability' means... what you need to make it happen.

**R: In what ways do you students become aware of the graduate attribute skills in a Unit?**

Through the Unit Outline and how this unit is going to help you build your graduate portfolio.

**E: R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: The rubrics are devoted to communication, teamwork – so marks are allocated to these. Tutorials have summative marks which relate to graduate attributes.

R: Is social responsibility considered too?

E: Not overtly at the moment.

**R: Another other comments?**

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.

**EDUCATOR 3****Researcher (R): How would you describe your teaching philosophy?**

Educator (E): Very much active learning although I would say more or less depending on the cohort I am working with. At the MBA level I have very much an attitudinal focus – it is all about collaboration and employing Kolb’s approach to learning.

**R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?**

E: I would describe passive as one-way transmission. In saying that the description of theory then leads to active participation through discussion and exploring how knowledge can be applied to practice. This ‘doing’ may be through case analysis and discussion for example.

**R: In what ways do you develop graduate attribute skills? Can you give me examples of how you do this? (e.g. teaching episodes, assessment)?**

E: Through curriculum design; they should be embedded in the pedagogical and assessment approaches we apply to students’ learning experiences. Graduate attributes should underpin course design. I am not teaching at the moment (research focus)

**R: In what ways do you students become aware of the graduate attribute skills in a Unit?**

E: If students read the Unit Outline. There is some verbal reference to them but not as graduate attributes.

**R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: Through assessment at learning outcome level.

**R: Another other comments?**

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.

**EDUCATOR 4****Researcher (R): How would you describe your teaching philosophy?**

Educator (E): My teaching philosophy is pretty much an evolving concept. I am very student-centred in my approach. I actively mentor my students to help them achieve their objectives. I believe I am a very hands on lecturer with a strong focus on interaction between students. I use and share lots of examples with my students. I feel this helps build skills in relating, sharing, reflecting and creating meaning for students. Again lots of interaction is a feature of what I do.

**R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?**

E: The word that springs to mind is engagement. Active learning is all about engaging students in a meaningful experience.

**R: In what ways do you develop graduate attribute skills? Can you give me examples of how you do this? (e.g. teaching episodes, assessment)?**

E: I try and role model the skills I want my students to develop. I get them to work in different groups to get them to appreciate diversity (in relation to social responsibility). They engage in problem-solving through a lot of group work. The feedback they receive on their reflection activities (and the reflective practice itself) I believe helps foster graduate attribute development.

**R: In what ways do you students become aware of the graduate attribute skills in a Unit?**

E: I discuss the graduate attributes in Lecture 1. I describe the assessment tasks and link them to the graduate attributes.

**R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: It isn't really. I mean there is some reference as I have said to them in lectures for example oral communication and how it differs across cultures.

**R: Another other comments?**

E: Not that I can think of at the moment.

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.

**EDUCATOR 5****Researcher (R): How would you describe your teaching philosophy?**

Educator (E): I work on connecting the students through theory to industry. I try and instil a sense of passion and develop an emotional connection with the theory through practical examples.

**R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?**

E: I am very much a person who adopts active learning. All my lectures are contextualised so students begin to embrace what is happening in the tourism sector. I got them to think about the Parks Tas projects – what they involve; what they mean to the community to the environment you know. They developed a site plan for Fortescue Bay and then did an actual presentation to Parks. So it is all about being an active learner in the most close to real-life as is possible or feasible.

**R: In what ways do you students become aware of the graduate attribute skills in a Unit?**

E: Pretty implicit I guess through my explanation of my teaching philosophy. They become aware of my expectation to communicate, share ideas, identify problems and how they are going to solve them and work in diverse groups.

**R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: For me it relies a lot on intuition rather than a focus on any sort of framework (or rubric). I am aware through their individual assessments on how they are developing their graduate attributes and there is some 'retro fit', to the extent they are developed, into the overall framing of assessment for the Unit.

**R: Another other comments?**

E: Not right now... got to go sorry.

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.

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**INFORMAL CONVERSATION WITH EDUCATOR 6**

**Researcher (R): How would you describe your teaching philosophy?**

Educator (E): Constructivist and authentic learning. Reflective and critical. Bridging the gap between theory and practice.

**R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?**

E: Depends on the nature of the Unit. I increase the proportion of active learning from 1<sup>st</sup> to 3<sup>rd</sup> year. A sound knowledge base is fundamental to move to higher order thinking. For example I use reflective practice journals as students move into 3<sup>rd</sup> year. I ask students to find evidence on a topic to improve their practice.

**R: In what ways do your students become aware of the graduate attribute skills in a Unit?**

E: For example if I am talking about developing a global perspective they need to understand the context and the philosophy to be able to problem-solve contextually. Real organisations should have policy in 'X' to be able to manage situation 'Y'. Obviously using communication skills to discuss the context and the appropriate policy is critical.

Students also need to look at the rubric and graduate attribute mapping. So they are integrated into the teaching and learning framework.

**R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: Only really informally in workshops and by observing groups working together.

**R: Another other comments?**

E: I think there is scope for us as a team to look at a more integrated approach to teaching and assessing graduate attributes.

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.

## INFORMAL CONVERSATION WITH EDUCATOR 7

### Researcher (R): How would you describe your teaching philosophy?

Educator (E): My approach is to help students to help themselves. For example if a student comes to me with a problem then I focus on encouraging him or her to find answers for themselves. This I firmly believe helps their own development. I feel my role as an educator is to foster engagement with the student – to help them build their self-confidence to ask the hard questions; to think about what they need to know and for me to offer a support role in *directly* them accordingly.

### R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?

E: I foster group work where ever possible but I am mindful that it is not always an active experience for students, particularly those from cultural diverse backgrounds. I think a student's personal development can easily start from work and sharing their ideas within their group... a sort of staged approach. Removing that fear that they have to speak in front of the class (like sharing an idea) can give them confidence to explore their ideas within the safety of a group (albeit a small one). Some may still be challenged so again my role is to facilitate the experience – be as approachable as possible so they can talk about their apprehensions.

### R: In what ways do your students become aware of the graduate attribute skills in a Unit?

E: Several examples I can give here from different perspectives. Firstly I attempt to model the behaviours that are the core of graduate attributes – particularly modelling specific behaviours relevant to a situation. I would then ask students '*Why do you think I responded that way?*'. It's about getting them to think about why certain behaviours are appropriate for certain situations rather than just telling them so. I talk about how a student can engage me. I talk about the importance of showing emotional intelligence and if they failed to succeed in a communication interaction asking them to consider why they failed.

### R: It sounds like questioning their actions and behaviours is crucial to the learning?

E: Yes, I want to open the doors to the ways that students can engage with me... and then think about how to effectively engage with others. I want them to think and talk about successful experiences they have had with other students and why they were successful. I also allow stories in my life to come out in my teaching and give permission for others to share their stories. For example, when talking about

how to develop an effective CV I start by sharing my journey in this process. It is interesting to watch how feedback comes back in a *big loop*.... I may not get immediate feedback on how my story telling may influence their development but it often gets relayed back to me some time later. I notice that by giving permission for students to show their vulnerability this opens the doors to them sharing their true feelings, thoughts and ideas.

In terms of developing problem-solving skills I set *hurdles* within their group project. Students then need to work out the best way to overcome these hurdles by applying a range of problem-solving techniques. This can also include addressing issues around using technology as part of the group learning experience.

**R: In what ways do your students become aware of the graduate attribute skills in a Unit?**

E: I talk about what I am trying to achieve in the Unit – not only learning outcomes but employability skills and emphasis when students graduate this is the skill set you are going to need to achieve your career goals.

**R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: Well within the rubric for the group project there is a component devoted to group process skills – which considers how effective the group would together (communication; conflict management; problem-solving). Managing group diversity is a key part of this group as groups are made up of students from diverse backgrounds. There is a mark allocated for participation in tutorials too so the focus here is on communicating ideas, questions...

We also conduct a mid-semester survey to see how we are going. The focus of this also includes ‘...which of these attributes have you developed so far?’

**R: Another other comments?**

E: I think there is scope for us as a team to look at a more integrated approach to teaching and assessing graduate attributes.

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.



## INFORMAL CONVERSATION WITH EDUCATOR 8

### Researcher (R): How would you describe your teaching philosophy?

Educator (E): I don't deliberately follow an explicit philosophy; I have more of a patch-work approach drawing on constructivism. I consider that anyone coming into class, they are coming in with their context – their own background - their own curves and curls. It is my role to find a way to fit their context to the 'classroom' and how the learning environment relates to them. This can be more challenging with undergraduate students. These students often 'don't know what they don't know'. What I mean is that their own personal context can be quite shallow. For some they may have worked in supervisory capacity therefore there is less of an area to connect to. I teach with an approach acknowledging different/diverse students backgrounds. I employ a broadly inclusive approach with a strong focus on transferability – I encourage them to develop knowledge and skills as part of a 'tool kit' and then consider the array of possibilities this knowledge and skills offers once it is in their tool kit.

What I find very challenging is teaching students what they have to know (compulsory knowledge) for example research methods. Here the language is exclusionary; concepts are complex. It can be difficult to engage with students in this space. Most rewarding moments are when student want to know what I am 'teaching' – when they will use it now or soon. I feel as if I am making a contribution to them and it is valuable.

**R: When you think about your teaching philosophy how would you explain the difference between active and passive learning? Can you give examples of each?**

I see passive as the adage 'sage on the stage'. Here is what you need to know – students are her to learn here they are. If I go back to the tool kit analogy, sometimes it is necessary to provide a foundation for active learning. For example, once students get the five components of a general environment then you can apply them. In other words some degree of passive learning is a necessary pre-requisite in some instances.

In teaching Introduction to Management I use the 'gaming approach'. For example I set up virtual environments to help students understand the complexity of management and that everything you do is set with existing relationships and structures, but I can see there can be a massive investment – what students bring may not be what they expect – i.e. they can't just sit. It is important to note that there is a disconnect between how students and I see the difference between passive and active learning. I believe it depends on the 'level' of teaching. I can be

constrained by the size of the cohort, but at the same time the desire to be inclusive can be challenging. Tailored and individualised content can be hard in larger unit. Students come from very different bases or contexts and this can be a challenge in creating an active learning experience.

**R: In what ways do your students become aware of the graduate attribute skills in a Unit?**

E: I tell them about them in the first lecture and where and why they sit within your degree. This is a passive introduction to them- students don't have any input into them. I don't think students feel they are relevant to them; I think students primarily care about knowledge development and assessment tasks for example a job selection interview. I don't believe students choose to study at UTAS because of graduate attributes – they are not a big focus. At RMIT for example they consistently approach learning with a practical focus within their degrees via internships with a focus on different attributes or skills.

It would be interesting to consider if we were being audited and the question was asked when, where and how were graduate attributes developed? Perhaps this could be through an essay question that focuses on social responsibility but it is entirely possible for students to undertake an entire unit without being formally assessed on their development of graduate attributes.

**R: In what ways is the achievement of graduate attribute skills monitored/measured at a Unit level?**

E: Just through assessment; by monitoring/observing through class-based activity or performance on assessment. I feel a bit conflicted as an educator – in that I should be doing some pre-test and post-test on students' competence regarding graduate attributes. Although I am unclear as to how I would do it and how much would I do. There are questions that I am unsure I have the answers for: 'What am I measuring and what's the trade-off for doing it? Could find that you have just called the emperor as naked!! This gives rise to the question of 'What position will students be in if all or some aren't able to demonstrate them?'

**R: Another other comments?**

Unspoken graduate attributes in Introduction to Management in that we will give you foundation skills (for example techniques for essay writing). Others commented when marking essays on students' improvement – following Intro to Management. If they get referencing wrong is this an automatic fail? Graduate attributes are only some of the learning outcomes of what we are teaching – some are about presentation skills. There are multiple levels of graduate attributes. I see

some potential dangers in assuming that students can then do it in the next Unit they undertake. I have concerns about providing less assessment. For example a series of journal tasks gave insights into how students are developing – it allows me to assess their ‘ups and downs’ so to speak. Through a series of tasks you get to know students inside and out. You gain important insights from multiple assessment tasks. It also helps students get confidence in an approach and build their own competence. Less assessment means less complete picture. Summative assessment can be so difficult – it is a ‘got it or not’ scenario. Formative assessment allows you to track a journey. Sometimes using andragogical principles doesn’t equate with instrumental outcomes of our students.

‘Some things you have to know [students] to make the things you need more interesting’ (quote). ‘You need to understand this in order to understand that’

**R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you your time.**

**Appendix 4**

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**Participant Information Sheet  
and Consent Form**

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## Appendix 4a: Participant Information Sheet

10 December 2013

Dear Participant,

### **A Study into the factors impacting on the development of Graduate Attribute Skills**

#### **Invitation**

Thank you for considering contributing to my PhD research project, which is supervised by Dr Colin Jones, Senior Lecturer of Entrepreneurship in the Tasmanian School of Business and Economics and A/Professor John Williamson, A/Dean Faculty of Education. This study is being conducted in fulfilment of Christine Adams' doctoral degree. The aim of the study is to identify and describe the structures, processes and circumstances through which graduate attribute skills can be developed in the higher education sector. These factors have received little consideration by academic research.

#### **Why have I been invited to participate in this study?**

You have been invited to contribute to the study as you are a 2nd or 3rd year student in the Tasmanian School of Business and Economics.

#### **What does this study involve?**

The process of assistance initially requires an informal conversation with you of your personal reflection of the factors that may have enabled and/or suppressed the development of graduate attribute skills during a Unit of study. This will be followed by a pre-unit and post-unit questionnaire (which should take approximately 15 minutes) which is scheduled for (add time and place). The questionnaires can be completed in hard copy format or online.

The nature of my questions relates to identifying the extent a unit enabled your development of three (3) graduate attribute skills – communication; social responsibility and problem-solving. Additionally we are interested to know if there was something about a unit that enabled you to develop the graduate attribute skills and in what ways you were informed about your achievement of graduate attribute skills in a unit. Furthermore we are keen to understand in what ways you were helped to track your progress toward achieving the graduate attribute skills.

In addition to the questionnaire, you are also asked to make three (3) online reflective journal entries; reflecting on your progress in the development of these graduate attribute skills. By completing both the questionnaires and the reflective diaries we will be able to gauge how

your perceptions of your development of these graduate attribute skills have changed as a result of your experience.

The study will conclude with a focus group on (add time and place) which you will be invited to participate in. The focus group will take approximately one hour. During the focus group I will take notes, and a copy of my notes and the transcript developed will be forwarded to you shortly thereafter for verification.

**Are there any possible risks from participation in this study?**

There are no specific risks anticipated with participation in this study.

Your contribution to this research would be entirely voluntary, at any point of time you may withdraw your consent to participate in this research process including the withdrawal of any data already contributed. We do not foresee any risks to you from participation, and can ensure you that your identity will be not revealed in the presentation and/or publication of subsequent findings (i.e. conference proceedings and/or academic/trade journals). Thus, your input will be kept strictly confidential, with all material collected shredded after a period of five years. This study has been approved by the Tasmanian Social Sciences Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email [human.ethics@utas.edu.au](mailto:human.ethics@utas.edu.au). The Executive Officer is the person nominated to receive complaints from research participants. Please quote ethics reference number H13172. If you would like to obtain a copy of my findings, contact Colin Jones or myself to express your interest. We can be contacted on the phone and email contacts noted below.

Finally, thank you for your consideration and participation.

Kindest regards

Dr Colin Jones

Christine Adams

**CHIEF INVESTIGATOR**

**INVESTIGATOR**

Phone (03)6221937

Phone: (03) 62 262953

Email [Colin.Jones@utas.edu](mailto:Colin.Jones@utas.edu)

Email: [cadams0@utas.edu.au](mailto:cadams0@utas.edu.au)

## Appendix 4b: Participant Consent Form

### Questionnaire, Reflective Journal and Focus Group Consent Form.

#### A Study into the factors impacting on the development of Graduate Attribute Skills

Dear Participant,

As part of the research project, could you please fill in the information below as part of your consent to be interviewed?

1. I have read and understood the 'Participant Information Sheet' for this study.
2. The nature and possible effects of the study have been explained to me.
3. **I understand that the study involves the following procedures:**
  - a. **A pre-unit and post-unit questionnaire of approximately 15 minutes' duration.**
  - b. **The questionnaire can be completed as a hard copy or on-line. The questionnaires will be available from (date and time) to (date and time).**
  - c. **The questionnaire is to be completed for three (3) BMA or BLT 2<sup>nd</sup> or 3<sup>rd</sup> year units across two (2) semesters.**
  - d. **An online reflective journal with three (3) journal entries for each BMA or BLT 2<sup>nd</sup> or 3<sup>rd</sup> year unit (9 journal entries in total).**
  - e. **A focus group of approximately 1 hour's duration. The focus group will be conducted on (add time and place).**
4. I understand that the focus group will be recorded into an audio file and kept confidential, transcribed, and stored on a CD in a secure filing cabinet and password protected computer for a period of 5 years at the University of Tasmania.
5. I understand that all research data will be treated as confidential, and that even so, in certain contexts my anonymity may be compromised given the nature of the study.
6. I understand that where I feel my anonymity is compromised, I have the option of refusing to answer, or to withdraw immediately and without effect.
7. Any questions that I have asked have been answered to my satisfaction.
8. I agree to participate in this investigation, and understand that I may withdraw at any time without effect.

Name of participant.....

Signature of participant.....

Date.....

- 
9. A statement by the *investigator* in the following terms:

**I have explained this project and the implications of participation in it to this volunteer, and I believe that the consent is informed and that he/she understands the implications of participation.**

Name of investigator.....

Signature of investigator.....

Date.....



**Appendix 5**

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**Pre-unit Questionnaire**

## Appendix 5: Pre Unit Questionnaire



### 2014 Survey of students on Graduate Attribute Skills development

#### Invitation:

You are invited to participate in a research study into the development of graduate attribute skills.

This study is conducted by:

Colin Jones, Senior Lecturer, Tasmanian School of Business and Economics

Professor John Williamson, Acting Dean, Faculty of Education

Christine Adams, PhD Student, Tasmanian School of Business and Economics

#### 1) What is the purpose of this study?

The purpose of this study is to gather information on factors students believe may enable or hinder the development of graduate attribute skills during different types of units of study. Graduate attribute skills include *basic, broad subject knowledge; communication skills; problem-solving skills; and social responsibility*.

#### 2) Why have I been invited to participate?

You have been invited to participate as you are enrolled in BMA or BLD units at a 2<sup>nd</sup> or 3<sup>rd</sup> year level that employ different approaches to teaching and learning. This research is interested in identifying factors that may enable or suppress the development of three (3) graduate attribute skills: *communication; problem-solving and social responsibility*.

#### 3) What does this study involve?

This is an anonymous questionnaire containing a mixture of tick and circle, as well as participant explanatory text response questions. This survey should take around 15 minutes to complete. If you agree to complete this questionnaire, then you will be asked to complete a similar survey at the end of this unit. You are also invited to complete a pre and post-unit questionnaires to gather information from two (2) other BMA or BLD 2<sup>nd</sup> or 3<sup>rd</sup> year units you are enrolled in.

You will also be asked to make three (3) online reflective journal entries, reflecting on your progress in the development of these graduate attributes skills. By completing the questionnaires and the on-line reflective journals we will be able to gauge how your perceptions of your development of these graduate attribute skills have changed as a result of your experience.

#### 4) What if I have questions about this research?

If you would like to discuss any aspect of this study please feel free to contact either Colin Jones (03) 62 261937 or Christine Adams on (03) 62 262953 either would be happy to discuss any aspect of this research with you.

The information that you provide in this questionnaire will not be made available or reported to any other person, in any form that could identify you as a participant. By submitting the form signifies your consent to participate in the study.

This study has been approved by the Human Research Ethics (Tasmania) Network. If you have any concerns or complaints about the conduct of this study, you should contact the Executive Officer of the HREC (Tasmania) on (03) 62267479 or email [human.ethics@utas.edu.au](mailto:human.ethics@utas.edu.au). The Executive Officer is the person nominated to receive complaints from research participants. You will need to quote the HREC H0013357.

Thank you for taking the time to consider this study. If you wish to take part in it, please make sure you have read through and understood this information then click the commence questionnaire button.

**Part 1: Questionnaire (general information and study background)**

**Age**                      <20                      20 – 29                      30 – 39                      40 – 49                      50+

**Gender**                      Female/Male

**Is English your first language?**

Yes/No

**Is this your first tertiary qualification?**

Yes/No

**If not, please list your previous qualifications?**

**Are you a full-time or part-time student?**                      Full-time                      Part-time

**Are you currently employed?**

Yes/No

**Approximately how many hours do you work each week?**

>40      <40 but > 30      <30 but > 20      <20 but > 10      < 10/week      Don't work

**This semester, what BMA units are you enrolled in?**

\_\_\_\_\_

**Data code\*** \_\_\_\_\_

\*Please write the first three letters of your mother's maiden name and the last three numbers of your contact telephone number. This code is to make it possible to connect data sets gathered over the two survey times and the reflective diaries. *This code is confidential and known only to you.*



**Part C: Questionnaire (Your understanding of graduate attributes skills before you undertake this unit)**

*(Please circle the appropriate response and enter additional information in the space provided)*

1. Have you been provided with a description of the expected Unit outcomes?  
Yes/No
  
2. Have you been provided with a description of the graduate attribute skills? Yes/No
  
3. If yes to Q. 2, how did you become aware of the graduate attributes skills? Please *circle* the items that apply:  
  
 Not applicable as I don't know what they are  
  
 There was a description on the unit web page  
  
 There was a description in the Unit outline  
  
 Other – please specify \_\_\_\_\_
  
4. Is a description of communication skills, problem-solving skills and social responsibility important to you?  
Yes/No
  
5. If so, why might the development of communication skills, problem-solving skills and social responsibility be important to you?  
  
 \_\_\_\_\_
  
6. How might you use graduate attributes?  
  
 \_\_\_\_\_
  
7. Are you aware of any links between the assessment tasks and the graduate attributes in this Unit?  
Yes/No
  
8. Prior to commencing this Unit, how would you describe your ability to demonstrate the graduate attribute skills? Please indicate your level of agreement with the statements below. Choose the most appropriate response to each question.

Strongly Disagree	Disagree	Only to be used if a definite answer is not possible	Strongly Agree	
1	2	3	4	5

	1	2	3	4	5
<b><u>Communication:</u></b>					
1. I can engage in persuasive, succinct oral discussions to communicate and influence other persons.					
2. I can construct well rendered, clear and concise written communication skills matching real world business situations and audience needs.					
3. I can communicate an argument in a succinct and logical manner and articulate it in an engaging and confident way.					
<b><u>Problem solving:</u></b>					
4. I apply logical, critical and creative thinking to complex business problems.					
5. I apply theories, models and methods to a range of management related problems.					
6. I can locate, evaluate, analyse and use information from a range of media.					
<b><u>Social Responsibility:</u></b>					
7. I consider social groups in business practice.					
8. I apply ethical values via confidential, honest practices and respectful behaviour.					
9. I show awareness and consideration of the public interest in business practices, policy and decisions.					

Thankyou.

**Appendix 6**

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**Post-unit Questionnaire**



## Appendix 6: Post Unit Questionnaire



### 2014 Survey of students on Graduate Attribute Skills development

The purpose of this 2nd questionnaire is to gather information from you about your understanding and development of graduate attribute skills and the factors that may have enabled or suppressed their development.

The information that you provide will not be available or reported to your organisation, or any other organisation, institution or person, in any form that could identify you as a participant. **Please do not write your name on the form.** Once you have completed the form please seal it in the envelope provided. Return of the form signifies your consent to participate in the study.

Thank you for assisting with this research.

Data code\* \_\_\_\_\_

[\*Please write the first three letters of your mother's maiden name and the last three numbers of your contact telephone number. This code is to make it possible to connect data sets gathered over the two survey times and the reflective diaries. *This code is confidential and known only to you.*]

### **Your understanding and development of graduate attributes skills after undertaking this unit**

*(Please circle the appropriate response and enter additional information in the space provided)*

9. Having completed this Unit has your opinion about the need for developing communication skills, problem-solving skills and social responsibility changed since the beginning of the Unit?

Yes/No

10. If yes, why might the development of communication skills, problem-solving skills and social responsibility be important to you?

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11. How might you use these graduate attribute skills?

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12. Did you become aware of any links between the assessment tasks and the graduate attributes in this Unit?

Yes/No

13. What is it about how this Unit was taught that enabled or suppressed the development of graduate attributes?

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14. What other factors may have enabled or suppressed the development of graduate attributes in this Unit or other Units you have studied this semester?

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15. Having completed this Unit, how would you describe your ability to demonstrate the graduate attribute skills? Please indicate your level of agreement with the statements below. Choose the most appropriate response to each question.

Strongly Disagree

Disagree

Only to be used if a  
definite answer is not  
possible

Strongly Agree

1

2

3

4

5

	1	2	3	4	5
<b><u>Communication:</u></b>					
10. I can engage in persuasive, succinct oral discussions to communicate and influence other persons.					
11. I can construct well rendered, clear and concise written communication skills matching real world business situations and audience needs.					
12. I can communicate an argument in a succinct and logical manner and articulate it in an engaging and confident way.					
<b><u>Problem solving:</u></b>					
13. I apply logical, critical and creative thinking to complex business problems.					
14. I apply theories, models and methods to a range of management related problems.					
15. I can locate, evaluate, analyse and use information from a range of media.					
<b><u>Social Responsibility:</u></b>					
16. I consider social groups in business practice.					
17. I apply ethical values via confidential, honest practices and respectful behaviour.					
18. I show awareness and consideration of the public interest in business practices, policy and decisions.					

**Appendix 7**

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**Summary of Key Themes: Personal Learning  
Statements BLD301 2014**

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## **Appendix 7: Summary of key themes from Personal Learning Statements BLD 301 Semester 2 2014**

The following statements are extracts from Personal Learning Statements submitted for assessment as part of the requirements for students enrolled in BLD301 in Semester 2, 2014. Anonymous samples were provided to the Researcher with permission of students for inclusion in this research study.

### **Q: Are you ok at working by yourself with a degree of ambiguity as to what is expected?**

S 1: 'I trust that in the end it will be ok, and that work will be achieved and yes in the real world outside our bubble of university there is always ambiguity and you are not always handed the outcomes that needs to be achieved; it is something that needs to be figured out along the way. It is teaching us the reality of the real world, which I think are some of the most important lessons'.

S 2: 'To be honest, I don't prefer to work with a degree of ambiguity. The reason is I believe that it is a bit hard to reach the expected target if working alone with ambiguity. It will be easier if working in a pair or group as many ideas and opinions will come from different people'.

S 3: 'Usually I prefer to work in a team environment. I feel that this project has shown me the satisfaction and fulfilment that can be achieved when you set an individual goal and accomplish it. No doubt, I would have felt a similar satisfaction in the group assignment if that went ahead and we were able to combine all our skills'.

S 4: 'I'm still not really sure how I like to learn. I guess most of my profound learning experiences have been from doing and not from being directly taught. I feel like the current structure of most of my classes is less than desirable. I don't think I've learnt too much at university accept how to do tests and a bunch of abstract formulas'.

S 5: 'In terms of learning structure, to begin with I struggled with the openness of the assignment, having to come up with a project by myself and then complete it. I felt that I would be more suited to receiving an assignment that is straight forward.... I was having trouble coming up with an idea to start, so I felt I was unable to just get stuck in and start my assignment. When I eventually came up with a project that I had growing in confidence in myself that I could complete, I began to feel more comfortable in terms of managing my own project, which the end result I am happy with. Throughout this assignment however I feel it has

helped me to not become overwhelmed when faced with uncertainty and to have faith in my own abilities that I can in fact come up with an idea, and then put that idea into action’.

S 7: ‘As a result of the instructions presented through the lectures, I have been able to enhance my confidence with regard to the materials to use for the study. The instructions gave me a direction and a better understanding of what I wished to accomplish..... I can also learn through different life experiences’. (Note: S 7 is an International student)

S 10: ‘I think this unit gave me the courage to work by myself when the outcome is unknown. I need to choose my way to complete the task given to me that is the hardest things to do. But if you unsure about something to do, do not be scared because I frequently asked the lecturer to deal with it’. (Note: S 10 is an International student)

S 11: ‘At first, I was quite uncomfortable working by myself, because I’m usually a follower and not a leader. Without proper guidance, I would feel lost and confused. However after this course, I came to understand the necessity of such ambiguity. Being a great entrepreneur means having the ability to take risks. While this particular trait isn’t for everyone, I believe I definitely have what it takes’. (Note: S 11 is an International student)

S 12: ‘...language barrier was an obstacle more than what I had anticipated. Luckily, my Thai friend assisted me’. (Note: S 12 is an International student)

S 13: ‘In fact yes. I like the expectation and discover in the future what I am working now with’. (Note: S 13 is an International student)

S 16: ‘A vast majority of university work has been completed at an individual level so I have learnt to reach my goals by myself. The criteria are always set out clearly so we are able to work towards achieving the maximum amount of marks with a low degree of confusion of what is expected. We are still provided with relevant information [this unit] and if we need further..... able to email lecturer and he is generally able to get back to us fairly quickly to give us direction so that we are able to get the marks that we wish to’.

S 17: ‘I am not the person who is good at working by myself and the worst thing is I am not fine when the situation comes with a degree of ambiguity as to what is expected. If I am working by myself, the first thing I normally do is set the goals. I need to get the “big picture” of what actually I want to do and what I actually I want to achieve. Therefore if there is a degree of ambiguity in my planning, it will become an obstacle as to what is my expected plan’.

S 18: 'I am somewhat okay with working by myself but with the degree of ambiguity to what is expected I like to prefer to get opinions of my peers to assist in influencing my end position on certain issues. The way this unit has been set up has made me less reliant on external judgments and opinions and to become more individual in my thinking. I also received appropriate feedback on redirecting my thinking back on the right path'.

S 19: 'Working with a degree of ambiguity has been one of the challenges throughout the entrepreneurship major. ...there is more often than not no defined right or wrong answer, no arguments to develop and defend and often no way of knowing if the work you're doing is any good. In this regard, an understanding that learning about entrepreneurship is about getting involved in the process was important for me feeling comfortable in the course. While there may have been ambiguity about the outcomes for a given project, one thing I did now was that I would be expected to get out there and get involved.'

S 20: 'I feel that when working by myself I am quite good at getting the outcomes I desire, but ambiguity around expectations from others is a fairly big issue for me. I feel that the work I do is generally quite good and I can adapt reasonably well to most challenges, however predicting other people's expectations is a weak point for me. The main issue with it isn't doing things in a different way or for a different reason; it's simply that I often overthink things when trying to essentially guess what someone else wants from me. Generally I feel comfortable if I am told exactly what is expected of me and in what terms, as otherwise I end up doing what I feel is right which often is not what the person setting me the task wanted'.

S 21: 'I am very capable of working with a high degree of ambiguity. My biggest weakness however is that I have severe issues with time management. I have the tendency to attempt too many tasks at once in very limited time periods instead of simply attempting to complete my main tasks over an extended period of time. My only suggestion regarding the delivery of these units is for the addition of several more documents with relevant information and expansions on new concepts. Although the sound clouds were extremely beneficial, it would have made it easier if there were several more resources for me to be able to review as I refer to learn by reading instead of listening.'

S 23: 'At the beginning I had not a clear goal. But later, I make short aim and long aim. And finally, I achieve 70% of my goals'. (Note: S 23 is an International student)

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**Q: Do you like to learn in different ways? And if so, how has the approach in this unit helped/hindered you?**

S 1: 'I have enjoyed the get in there and work, and finding what works, what doesn't. How can I make this better, and reflect on this has really enhanced my experience in this degree and I think this makes me better at those other subjects'.

S 3: 'Yes, I do not excel in the traditional delivery style of most university units. Through this style of learning I have been able to briefly learn a theory and put it into practice. Often examples are given in other units on how to transfer theoretical ideas into real life situations; however it is never actually demonstrated or put into practice. This is why I think this unit has helped me learn and do reasonably well'.

S 4: 'I have found working with myself fine and ideal in many ways. It's been a relief to have my own self-direction and embracing that to make some of my ideas reality. However, I have found the ambiguity difficult at times. But I think that's just because I'm used to having a clear cut set of instructions and just ticking the boxes. In this type of curriculum, it is comforting but dull. It's actually been quite hard for me to switch between the two styles'.

S 5: 'I like to learn in a structured environment in which what is required is set out and clear. Clearly the learning approach in this unit was anything but this, but I believe this has helped me in terms of thinking creatively and having confidence in my ideas and implementing them, which in my other studies, and in life will help me in grasping opportunities. Effectively the style of learning in this unit has given me a base to build on and look back to when deciding whether the ideas I have are good enough in the future'.

S 7: 'The methods used in the classroom contributed greatly to learning. Different methods were utilized in the class including lectures, group activities and workshops. I prefer learning through different methods... this is because monotony is curbed. Another factor that has made the lectures to be appealing is the use of real life experiences...'

'When interacting with peers, the explicate content at a level of understanding and in a language that is easily understood. In addition to this, working with peers also has exposed me to many ideas about entrepreneurship. Members of the group shared their thoughts and also helped in building personal ideas. I found I can learn through different life experiences. I have been assessing my ideas and realized that some are viable while some are not'.



S 8: 'I have so strongly learned that I have to stay true to myself, just to trust you get feeling. This semester I was also enrolled in 'Festival and Event' management and although I had to do a similar event as part of the group assignment, I have learned all the practical things by doing it. Also the framework of why things work out the way they do is important. I am not saying that the other more 'academically' unit wasn't good, but I have just learned more from the reality rather than reading about it'. (Note: S 8 is an International student)

S 9: 'Yes, I am very enjoying this learning method; because this method it allows us to use what we have learned in the class in the real world'. (Note: S9 is an International student).

S 10: 'I did not like to learn in different approach because I do need to face uncertainty which is unknown the outcome. I do like to do learn same approaches which I expert in doing so. But in this unit it's taught us to be out of comfort zone which is challenges me. In academic there taught us to learning new theory in every single week which is normal. This unit is far different approach... for example tasks was to create the website and promote to target country that we do not have connection. This was indicated challenged to me in order to face the real entrepreneur world.' (Note: S10 is an International student).

S 11: 'When we discussed about various approaches into the project, I gained significant amounts of insights from fellow students. One method is not always "be-all" and "end-all". Therefore I looked towards other students and shared valuable resources, making the project significantly easier than not doing so'. (Note S 11 is an international student).

S 12: 'It is interesting to learn in different ways that encourages me to experience new knowledge'. It motivated me in that I could work out in a realistic way rather than a theoretical approach'. (Note S 12 is an international student).

S 13: 'My personal learning during my studies of entrepreneurship was different than any other units. I found my strategic thinking has changed and developed. In fact, I find myself looks at any things differently'. (Note S 13 is an international student)

S 14: 'I started to develop confidence in making decisions related to my learning tasks and not afraid to fail in the process learning'. '... Even so I chose something I thought will be easy and give more opportunity to pass and that is my big mistake. I lost my interest on that project afterward and this affects my efforts since I did not have passion along the process. (Note S 14 is an international student)

S 16: 'The approach was that it was very much self-guided learning and we had to guide ourselves with assistance to achieve our outcomes, with the aid of catch-ups so that we were kept on track. This differed from traditional methods where we are guided to think in a certain aspect and will most likely forget a great amount of the content. It also took a lot of pressure off me as a student by not having to keep up with the constant lectures and tutorials'.

S 17: 'When I'm listen to someone, it's just not hear what they are saying but actually try to consider what actually they are saying and find something that I can agree with and the key points. ... I always tried by best to develop friendship among my team members to well know, respect each other's and make the group project is easy run besides one way to apply and improve my communications skills'. (Note S 17 is an international student)

S 18: 'I believe I do learn in different ways, I like the units to be well structured so I can allocate specific time for tasks and timeframe them. But the different approach that this unit has helped me in the way I approach my studies in the sense of taking more responsibility in my learning because of the minimal contact time and arranging meeting times when necessary'.

S 19: 'In my experience, having the opportunity to learn in a number of different ways has been on the highlights of the entrepreneurship major. From more structured seminars to group and one on one discussion, the ability to be able to adapt to these learning styles has been for me critical to success in the course. Having the experience of these different learning styles has certainly helped me in BLD 301 where we have learnt in a fairly unstructured manner'.

S 20: 'Generally I find that I am better suited to more directed learning approach, and as such I think that the approach of some of the entrepreneurship units may have hindered me slightly. This would also of course be related to my own ability to adapt to changing circumstances but I often feel unsure of what I should be doing and how I should be doing it. I am quite confident in doing what I feel needs to be done, but at university I feel that I am more trying to do what is expected or desired of me by my lecturers and trying to predict what other people want from me is something I am not particularly comfortable with. I found when working that often what I thinking should happen is vastly different to what my superiors felt should happen, especially in xxx and so moving from that environment into the relative freedom and uncertainty of studying entrepreneurship has been fairly taxing for me'.

S 21: 'I naturally love to be able to learn new concepts completely self-directed and the way that these units were delivered enabled me to do exactly that'.

S 22: 'The 2<sup>nd</sup> entrepreneurial class showed me something a little different than what I was expecting though. I had to vocalize my opinion and thoughts in a way I had not had to be throughout my business degree. When I begin to critically reflect on this initial class I began to see a more business-like mindset that I could actually use. It was not a handful of theoretical models and frameworks developed by people who have never worked outside academia, it was a framework that I could actually use and could see a point of use.

The creative-problem solving (CPS) framework showed me a way to actually categorise and improve on what I already did; I just did not know I did it.

Another key thing I felt I can take away from the entrepreneurial classes of my degree is the confidence to make decisions without fearing the grueling notion of failure'.

**Note:** Students S 6, S 9, S 14, did not completely or correctly address the questions outlined in the assessment task.

**Appendix 8**

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**Focus Group Questions and Transcripts**

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## Appendix 8: Focus Group Questions



### **Examination of the structures, processes and circumstances through which Graduate Attribute Skills can be developed in the Higher Education Sector**

1. To what extent have you developed each of these graduate attributes? Communication skills? Problem-solving skills? Social responsibility?
2. What is it about how this Unit was taught that enabled the development of the graduate attribute skills– communication skills, problem-solving skills, social responsibility?
3. What is it about how this Unit was taught that suppressed the development of graduate attributes?
4. What other factors may have enabled or suppressed the development of graduate attributes in this Unit or other Units you have studied this semester?
5. In what ways have you been informed about your achievement of these graduate attribute skills?
6. How will the development of these graduate attribute skills assist you in other units, your profession and life?
7. Any other comments?

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## Focus Group Transcript and Research Memos from BLD301

**Researcher (R): To what extent did this unit enable you to feel more confident in having developed graduate attributes, particularly communication, problem-solving and social responsibility skills?**

Student 1: We used various means of communicating which was great, like discussion boards. There were also options for how we presented our business proposal.

**R: That's interesting can you elaborate on the options and how they benefited the development of communication skills?**

Student 1: I liked that we could choose how to present our proposal; it didn't have to be in writing so I recorded mine. This really suited my approach to learning and I think having options really allowed us to think about what would work best for our audience – you know who would be considering our proposal.

Student 2: Yes, me too. I felt the same way, but I chose to submit mine in writing (nodding in agreement).

**R: Can we talk about the development of your problem-solving skills in this Unit?**

Student 1: This subject really impacts on your learning approach as it is all about real world experiences. I mean I really had to think 'outside the box'.

**R: I'm interested to hear more about that. Can you give me an example or explain what you mean?**

Student 1: The business proposal was all about identifying an idea and taking it further. I mean we had to apply it, so at times I would think this would work and then get feedback, talk to others and find it wouldn't work. So I had to explore different options.

Student 2 and 3: Yes, real world experiences mean you are always going to find problems – that's life. So this Unit gave us an opportunity to feel what is like planning and evaluating my ideas.

**R: I notice you used the word 'feel' 'what is like planning. How did it 'feel'?**

Student 3: For me it was daunting as I hadn't done anything like this before. But we used the discussion board and group meetings to talk about our ideas. We also could talk to our lecturer if we had worries you know... (All students nodding in agreement).

Student 2: The Unit requires us to be assessed on our reflections. We have to write about the project process and what it was like to plan and put it into action.

Student 4: The Unit is very self-directed. You need to be responsible for planning and evaluating the success of your ideas for your project. The research we had to do for our project really encouraged discovery – finding the best way to do things.

Student 5: The fact that authentic assessment is used in this Unit means you are not just looking at theory; you really need to solve ‘actual’ problems. I think that is important for us when we are looking for jobs. I can actually tell an employer what I have done in this Unit. You know doing a project on my own and being independent.

(General nodding)

Student 1: Our lecturer told us too that it was alright to fail the project.

**R: Can you explain that a bit more? I am curious about that?**

Student 4: We had an assessment rubric so we knew the criteria for success. But we were told it wasn’t about getting the best outcome – raising lots of money, but it was about the process.

Student 3: The journey, I think is a good way of saying it.

(General nodding).

Student 1: The experience was emphasised. We were told in business that makes mistakes will occur but it is how we recover from those mistakes that matters. Do you know what I mean?

**R: Yes, I do. How do you think that has reflected on your level of self-confidence having been through this experience?**

Student 2: I am about to graduate (others nodded indicating the same). To get a job I am going to need to be confident in my abilities. I am going to need to be able to discover new ways of doing things as the world is changing all the time.

Student 3: Yes I am going to have to be self-directed and take ownership or responsibility so good communication and being able to solve problems is real important.

Student 5: I think I am a much more mature student now.

**R: Would you mind expanding on what you mean by mature?**

Student 5: Well I have good time management and organising skills. I know my goals and I am more independent. I think I have a stronger self-concept.

R: And you attribute that to this Unit?

Student 5: All these entrepreneurship units allow you freedom and they are not just theory so they have helped a lot.

Student 4: Yes I am much more motivated to learn. I think that is going to be important when getting a job too.

**R: Thanks for your feedback. Can we talk about social responsibility? To what extent did this unit enable you to feel more confident in having developed social responsibility skills?**

Student 1: Mmmm not too sure?

R: Does anyone have a comment about social responsibility skill development?

Student 3: I know when I was communicating with others about my project; I tried to listen to others points of view. Not just thinking that my ideas were right.

**R: How did that make you feel?**

Student 1: Sometimes it was hard as I was juggling things and had priorities, but I knew to get people on board with the project I needed to listen to them and not be too quick to judge.

R: Is this view echoed by others?

Student 4: Yes I guess so. I hadn't really thought about it consciously before. But I reckon it is important to respect others viewpoints to get a job done. (Others nodding in agreement).

**R: There are other units that are conducted with regular lectures, tutorials, assignments and exams. When you compare that approach to that employed in this Unit, do you think this approach was more effective in developing graduate attributes?**

Student 1: I am doing the Leadership unit this semester... it was messy at first but now we have Lecturer X so it's better. (Others nodding in agreement).

Student 2: I think those units, like traditional units, you only learn about social responsibility through reading.



Student 3: Group works helps when there are students from other countries.

Student 4: There is not enough freedom in other units. I mean you are told how to do things – how to solve problems. You are not taking as much responsibility for your learning.

Student 3: It suits me to have more structure. I need to know what's expected of me.

**R: That's an interesting comment (Student 3), why do you think that is the case for you?**

Student 3: I'm not sure. Maybe it's my personality. I learn better that way I think. I need my expectations to be really clear.

Student 5: In this Unit I found it really interesting to hear what others are doing in their projects when we had group meetings. Although we weren't doing group work I learnt about others and how different we are – how we all approach things differently. There is no right or wrong. Not sure how much that has happened in other units or maybe I didn't think about it much.

**R: That's a really interesting comment. Do you think the Lecturer has helped you think about social responsibility more in this Unit?**

General nodding and agreement.

**R: So how has that occurred?**

Student 2: It's hard to explain but I think I reflect on my beliefs and ideas a lot more in this type of Unit. Other units seem to be more theory focused and assessment and the outcomes – you know passing.

Student 3: Yes I haven't felt in this Unit that I have been defined to a 'box'.

**R: Any other comments about your feelings before the unit?**

**R: Another other comments?**

(Students generally shaking heads).

**R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.**

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## Focus Group Transcript and Research Memos from BMA236

**Researcher (R): To what extent did this unit enable you to feel more confident in having developed graduate attributes, particularly communication, problem-solving and social responsibility skills?**

Student 1: Well we needed to communicate amongst our group and ensure we could justify to the lecturer why we had chosen to conduct our event.

Student 2: We then had to use our communication skills to present our ideas to the lecturer and the class.

**R: Did you do a presentation?**

Student 3: Yes, we had to develop a PowerPoint presentation and decide who was to speak to each slide so we thought about how to communicate our ideas and who could do the best job.

(Others nodding in agreement)

**R: That's interesting. In what other ways have your communication skills been developed in this Unit.?**

Student 4: We had to use social media a lot. There were only two (2) contact days in this Unit which wasn't enough so we had to organise our group meetings using Facebook.

**R: So I am hearing that you would have liked more face to face contact to develop your communication skills? Is that correct? How would this have helped?**

Student 1: Most of us found it difficult to find time to meet so in some ways Facebook was good. But everyone learns in different ways and I know some in our group weren't comfortable in the online environment – particularly when we were trying to plan an event.

**R: I would be interested to hear how others feel about this point?**

Student 7: I think the Unit needed more structure and more face to face time would have meant getting feedback on our questions which wasn't easy. I think it would have been better if we could chose to be online for meetings not just have to.

Student 6: Yeah, not being a 'keyboard warrior'.

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**R: I am sensing some frustration here, is that the consensus?**

(Others nodding in agreement)

Student 2: If we had webinars that would have helped.

Student 7: I thought we were having them, but they were cancelled.

**R: Would these have helped your communication skills or are you talking about helping you understand the content of the Unit?**

Student 3: I think we communicated well as a group and really listened to others ideas. I like being online as it brings more flexibility to the learning. It is good if you are determined, but not if you are a bit lazy.

**R: I am interested to hear more about how you managed your group if someone was 'lazy'.**

Student 6: Some of us have skills in relation to festivals and events so when someone didn't contribute we were lucky to be able to pick up what they didn't do. Our group had to discuss how to manage our time and communicate our ideas if one person wasn't doing their bit.

Student 1: We also communicated with industry to find out their perspectives on our event idea.

**R: That's interesting. How did you decide the best way to communicate?**

Student 1: Mostly by phone. Well that's easier and quicker way as we had to manage our time.

(Others nodding in agreement)

**R: I would like to hear to what extent you developed your problem-solving skills in this Unit?**

Student 2: We got a lot of inspiration from others in our group when we faced a problem but it was much harder online.

**R: Could you have adopted a different means of communicating to solve your problems?**

(Silence)

Student 7: I guess so but if we had more face-to-face contact in the Unit earlier on then I don't think we would have had as many problems.

Student 6: Yeah because some of the stuff on MyLO wasn't clear.

(Others nodding in agreement)

**R: How could you have resolved these problems then given the structure of the Unit?**

Student 2: I think we were just worried about the timeline and looking for the lecturer to solve our problems rather than being a bit more self-directed and working out strategies.

(Some nodding in agreement)

**R: I would like to hear to what extent you developed your problem-solving skills in this Unit?**

Student 6: I think we have all become more socially conscious. I mean really thinking about why we are putting on this event and who is going to benefit.

(Some nodding in agreement)

Student 4: I found working in groups with students from other backgrounds helped me consider other people's perspectives.

Student 5: Yeah it was talked about in the lecture [social responsibility].

Student 1: By organising an event we are being socially responsible. You know thinking about the community and what it needs.

**R: That's a really interesting comment. Do you think the Lecturer has helped you think about social responsibility more in this Unit?**

(Some nodding and agreement).

**R: There are other units that are conducted with regular lectures, tutorials, assignments and exams. When you compare that approach to that employed in this Unit, do you think this approach was more effective in developing graduate attributes?**

Student 7: I think everyone learns in different ways and online doesn't suit everyone. I prefer face-to-face and exams.

**R: That's interesting and something I haven't heard a lot from other student groups. How do other people feel?**

Student 2: It depends on the Unit and how it is taught. This Unit (well that's what I think) needs to be more face-to-face.

Student 1: Yeah as someone else said more structure early on. More time with the Lecturer – some feedback. Would have been easier to get clear ideas on what we were supposed to do.

Student 3: I haven't really thought about the graduate..... ahh skills

(Some nodding and agreement).

**R: A number of themes have come out of other focus groups and surveys students have completed. I wonder whether I could ask you to comment on these in relation to developing communication, problem-solving and social responsibility skills.**

**Firstly, becoming a 'critical friend' to a peer – such as giving constructive feedback.**

Student 2: Yes we relied on each other in our groups to give clarity to points others didn't understand about the assessment and also the best way to plan our event.

Student 3: Yes but it was hard just using social media like Facebook. There should have been other ways of sharing and giving feedback I think.

Student 7: I suppose this is part of what you were saying about being a bit more directed ourselves. I know at work we are supposed to try and sort out our own problems.

**R: Would you agree, somewhat then with the statement 'It is important to remember that what the student does is more important than what the teacher does'?**

Student 4: We need to know key concepts and also how to access important information so what the teacher does is important – like really clear expectations, but then yes it is about how we plan and execute ideas.

**R: Very interesting, thanks for that. Another theme I would like to share, some students have said that being able to make mistakes and learn new ways of doing things has helped them develop graduate attributes. Do you agree?**

(General consensus of year)

**R: How has this occurred in this Unit?**

Student 6: I think the Lecturer was pretty interested in the process we had adopted. How we made decisions – what was our thought process. That's not always the case in other units.

Student 1: Yes we are all doing different units so it depends a lot on the teacher how much they want to know about the process or the result.

(Examples provided: BMA299; BMA328; BMA329; BMA351; BMA101; BMA151)

**R: Another other comments?**

(Students generally shaking heads).

R: Thanks very much for your time. Just emphasising again that your comments are confidential and I appreciate you volunteering your time.

Note: All students enrolled in this Unit were in attendance when focus group questions were asked but only seven (7) chose to participate.

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## Focus Group Transcription Semester 1 BLD 202

**Researcher (R):** Alright so let's get underway. Firstly I just want to thank you all for coming and putting aside some time during Week 13. I just wanted to let you know that I'm going to be recording this session. The data, the information that comes out of the session still remains anonymous though, so you don't have to worry about you being identified in terms of any information that I extract from our conversations, and it is a conversation. I wanted to confirm too that you're all from BLD 202, is that right?

**Students (S):** Yeah.

**R:** Cool. Thanks. The questions that I put together tonight come out of the themes from the pre-unit questionnaire and the post-unit questionnaire. So at this point in time all I've done is identified a few themes and I wanted to explore them a bit further with you. So I've just got a series of questions and if you feel like you can't comment on them - because as I said these are themes - so if it's not something that you've identified yourself, then obviously you don't need to comment. As we go through the questions, something will come up from one of your responses - so we'll dig around a bit and go from there.

**Students (S):** Yeah.

**R:** So one of the things I noted from reading the feedback from the unit and your experience, is that many of you talked about the value of group work in developing communication, problem solving skills and social responsibility. I'm just curious initially around how you feel group work helped you to develop those graduate attributes, so can you expand?

**S 1:** I think communication is the biggest one because our group especially, half of the group is from Launceston, so the only conversation we've had was Facebook messages. So it was just that constant blog of messages and there was no face-to-face interaction at all.

**R:** So you're in group 11?

**S 1:** No, in group nine.

**R:** Okay, group nine.

**S 2:** Yeah we met up a few times at Uni and stuff but it was only half the group.

But yeah, it was good everyone had their own input. We could figure out which ones were the best and weed away the bad ones and so we all worked out to get the best results.

S3: Half of it was to do with how well someone worded it in the conversation.

S1: Yeah.

S2: Because you really can't understand what inflection they're putting on into their conversations especially if it's incredibly casual. You don't know what direction at all someone's thinking. Until someone else summarises you make that connection and summarise theirs with someone else's.

**R: So I'm hearing something about being able to summarise and then getting connections between...**

S1: Yeah, because everyone had their own direction they were trying to head and trying to articulate what they felt.

Students: (Nodding in agreement).

**R: How did you feel doing the presentations in the first two days when you were doing your presentations and doing a strategy in the game concurrently - did that lay the groundwork for developing group work skills?**

S 5: Yeah and everyone understood each other a lot better...

S1: Yeah.

S2: Yes, because you wouldn't be able to confront some people initially if you hadn't been exposed to them and got some understanding of where they were coming from.

S 3: After the first couple of things we all knew each other's strengths and how people liked to work. We all realised who was most likely to be able to work together – we got some idea of their values, how they approach things so yeah it was good.

**R: So what sort of process was happening then? Because you said, including ideas and discarding ideas, what was happening?**

S 1: Well not really discarding ideas... trying to streamline because there was often too much input rather than narrowing it down to something important to achieve our goals.

S 6: Something straight, bang, easy, concise, clear.

S 7: Yeah we're on the same group as well - but a different group to those two - but yeah, communication was the chief thing with ours, though luckily everyone was at



the Hobart campus here. So it made it a lot easier to organise to go for meetings. I've been there quite a few times especially with the website, so yeah.

**R: Was it a cross-cultural group or were you all domestic students?**

Students (all talking): All domestic – maybe bar one.

S 1: I think she was of – was she of Indian descent?

S 4: Yeah, I don't know. But she was probably the most organised out of the whole group.

S 2: Yeah, she actually did a lot in the way of leadership...

S 4: Yeah, all the meetings, she would be the one that suggested it.

**R: How did that come to be?**

S 5: Probably because most of us, the majority of our group were in Ag Science so we had assignments and pracs at the same time so we'd been a little bit absent and then...

S 2: The contact hours are higher for a start so you have less free time. But she just initiated - it was like, okay guys let's get together this week on one of these days and get it organised. It was quite strange the way the structure of the group changed from the first activities because people who you thought were going to be the really strong leaders... really slacked off majorly [laughs].

S 3: It's interesting you make that point. I felt challenged in a way ... if you identified yourself as a natural leader or the sort of person who'd try and take a step back, and if you weren't the type to normally jump up, to actually challenge yourself to step up. I thought about that a bit in the personal learning statement I wrote like ... I stepped back and I really regret it now because the group didn't go as well as what I wanted...

S 2: And I wish I would have stepped in and I think I might have actually made it harder for everyone else.

S 6: Yeah, I think me and [S 4] did it quite well because initially we just did as much as we possibly could to what we thought...

S 4: Yeah.

S 7: Yeah, we had the ideas there. We knew exactly what we had to do but we just didn't have the knowledge of the website designing...

**R: From what I am hearing it sounds like you did some reflecting on what was happening during that process of the group development and how best to communicate?**

S 1: Yeah, we reflected. Especially, when we realised whenever you add something to the site, you'd notice a clear spike - whichever link it was, if it was a website or video or whatever. [Others nodding in agreement].

**R: That's good. Do you think the group work helped develop the other graduate attributes - problem solving, and social responsibility? Or is it really, when you think back now, yeah I'd say communication was the main thing that came out of it from the group experience?**

S 7: For some people I think it helped a lot. I think it was good for me. I'd say other people in our group probably benefitted as well. But I'd say some people thought they already had it under control and they gained nothing from it [laughs].

**R : With the emphasis on the group work in this unit in comparison to the other subjects that you do, do you see that as being a good thing, a bad thing, a different thing, the same thing?**

S 8: Groups are too large [laughs], straight up. I don't know about you guys but for us, we always work in pairs or threes at the absolute most [ in the lab].

S 9: Yeah, so I think that it's just the different subjects there. Because the science clearly, you get one answer. That's science. It's fact. Here it's more open to interpretation and everyone's got their different experiences and different ideas on the table, points of view so groups are important to explore ideas, concepts, values...

S 7: We both take geology. That's our major and it's a totally different line of thinking but that's where all of our project work's quite physical, in some of them you can literally, walk up, and this is this rock, it's going here on there. When on the websites, can go anywhere and it doesn't matter what it is, it could be, in here.

**R: Some of you talked about being in cross-cultural groups affected the group work's performance and therefore perhaps also affected the extent that your communication skills et cetera were developed. How do you feel about that statement?**

S 1: I think it is - yeah we were fine with it. We had no, there were no language barriers between any of us so that was easy.

S 2: Two only, but one we had, an older Hobart bloke but he had a child so he wasn't able to input as much because he already had to look after the kid - that was his excuse [laughs].

S 1: Not that he wasn't - he was more than willing to do it, it was just a time-constraint.

might end up with three international students in their group who just...

S 3: International students do tend to work better together with one another though, they really do.

S 4: It's not a matter of whether we accept them or not because I'm pretty sure we all do. But they do just tend to work better with one another.

S 2: That's it. Imagine going over to China for instance, we would be exactly the same.

[students nod in agreement]

**R: That's interesting because that leads me into the next question. I know that a lot of you wrote about the unit pushed you outside your comfort zone.**

[Laughter]

**R: I thought - comfort zone, comfort zone, that came up - and I just wondered if you could explain that in the context of specifically, communication, problem solving and social responsibility which are those skills that I'm interested in? Can you explain a bit about what's going on with that comfort zone thing and how being pushed might have helped you develop those skills?**

S 3: The biggest thing for me was public speaking. I absolutely hate it with a passion. I get the shakes, something so simple, like we had our rugby formal dinner, this was a couple of weeks ago. I had to go up and get my Guernsey. That was such a big thing for me, I sat there and I was shaking. So getting up in front of people and actually talking and stuff like that, it was... I'm a lot better now than what I was. But yeah, I just have to build a bridge and get over it [laughs].

S 1: But if you do it across a semester it's amazing how people then transfer - actually it's not that big a deal - go to another unit, do something in another unit, come back even better and this, by the time they get to the end - what was I even worried about? [General nodding in agreement]

**R: Apart from the presentations, anything else that made you feel like you were being pushed out of your comfort zone?**

S 5: I guess it was the website, the whole website was a bit daunting...[ general nodding in agreement].

S 8: ...because we'd never ever experienced making a website before or using internet for marketing or anything like that so that was a bit different.

**R: So do you feel like you were pushed into it?**

S 2: Yeah, it's like getting in the deep end, just figure it out. We figured it out, we're done.

S 2: But at the same time the whole time you're thinking how you apply that...

S 4: Exactly.

S 2: ...to something else.

S 9: Yeah.

**R: So instantly I see you guys as a geologist thinking, well will you always be employed? Will you be consultants? Will you have your own website? All those sorts of things.**

S 2: Yeah.

S 4: You get that realisation when you're doing it because it's - we were quite limited but we didn't understand - quite quickly after setting up the website we realised we are quite limited. But then you think if I was to do it again for something with my own interest, would I do this, would I do that - a lot of it, no [laughs].

**R: The process of problem solving, given that you're all from a, let's call it a scientific base, would you see that the problem solving process that you were working with, you were able to apply skills that you've picked up in your other subject areas or were you having to draw upon or use different processes?**

S 2: Yeah, I think the scientific platform's perfect because you eliminate things so quickly...

Students: Yeah [laughs].

S 1: Yes.

S 2: ...like that's how quickly can you eliminate something rather than...

S 1: It's elimination before nomination most of the time.

S 2: ...yeah, because you're going to arrive somewhere by eliminating everything rather than trying to include some [cash].

**R: That's interesting.**

S 3: But you're going backwards if you're putting too much in because you're not narrowing it down - well, from a scientific perspective anyway, because we're trying to arrive at an answer.

S1: Same as us yeah. We're Ag. science, you guys are geology, it's...

[Students nodding agreement]:

**R: You mentioned creativity too just while there was that conversation happening, did you want to...**

S 5: Yeah we don't really have to have any creativity. It's, you look through books and you look for facts and reasoning and logic. There's no creativity in that [laughs].

S 6: Yeah.

**R: So does that mean that you were pushing, when you said you were pushed out of your comfort zone, having to be...**

S2: Yeah, it is. It's like how often do you have to be creative really?

S 8: When cooking dinner at the best.

S 3: Geology is quite different. Because there are so many answers and so you're constantly thinking... And theories.

S 6: ...this model applies, that model applies. You can think quite broadly and not have an actual definitive answer at the end of it either.

S 4: With creativity though, it's you've got to put your idea out there and be ready to be criticised for it as well. Yeah and I don't really like being criticised [laughs].

**R: So is that because you're outside your comfort zone?**

S 4: Yeah, actually being able to put out my idea...

**R: You have the feedback.**

**R: There was a word that jumped out on so many of the responses that I read; freedom. What was it about this unit that helped you develop these graduate attributes, freedom, and inevitably it wasn't expanded upon and I launched into that word and I thought, I wonder where you guys are coming from. So how did**

**freedom help you develop communication and problem solving and society responsibility?**

S 2: I guess the fact that we were less constricted to what material we could use. We could touch on bases for sex and drugs and this and that. Other units would say, no way, you cannot touch on that, it's not what uni is about [laughs]. So it's that kind of freedom [laughs].

**R: So it was about content you could access?**

S 4: Content, absolutely, less restrictions on learning because everyone's different I think and if you've got restrictions there how can you learn? If you're learning here but you can't go past this line, you're not going to learn are you?

**R: So another way of saying that was that you liked the fact that you could personalise whatever the topic was back to what's in your world...**

S 4: Exactly.

**R: ...which is the aim, which the unit is designed around.**

**R: In a perfect world that means you're going to get 11 groups, 11 different presentations which gives you 11 different bites of the cherry in terms of, yeah I see how that one works.**

S 7: That's how that one works. Yeah.

**R: It aims to be divergent not convergent.**

[Collective student agreement]

**R: I wonder to what extent when you talk about freedom, whether you know where in other classes you might be expected to be eliminating and narrowing down to this...**

S 2: Basically, for all of my subjects it's either this or that, whereas this one you could just go crazy with whatever idea you wanted to.

**R: You mentioned learning styles as well a bit earlier... can we go back to that? You said people learn differently.**

S 5: Exactly, that some people were better at learning by writing down their ideas and then we could explain them by running around and doing stuff, whatever - guys, girls, introverts, extroverts - everyone's different.

**R: I noted too that when talking about learning styles and different experiences and freedom, that people often talked about the benefit of the unit being very experiential and I don't know whether that's been a different experience for you from other units and how has that helped develop those graduate attributes do you think?**

S 7: Through high school I studied mostly arts like drama, so I was quite comfortable being in there. But what I benefitted from was expressing or getting people to express themselves the same way we were, getting the group to be doing everything together.

S 5: Yeah. That's what we ended up doing but it was like there was - it was our way at the end of it, everything was always how we ended up wanting it to be because they didn't have a good enough grasp on the concepts and they weren't as humorous. It was not going to be as good as you get and they knew it. They knew we were better at that sort of stuff.

**R: Your lecturer and I have been talking about something... so maybe I'll throw this in and see what you guys think – we were talking about identity. So from the lecturer's perspective, each group across the unit will develop an 'identity' and that identity will be selected for them - someone says, okay wow, I can't wait for this next group, are they going to rap again?**

S 1: Yeah.

**R: They've developed this presence, which isn't you, but you have your own presence which is something else- some people rely on technology and other things. So I've talked to your lecturer – that that environment will select for the content, so do your main theory, the context - how well did you present theory - and there's this other thing which is your identity. You build up some assumptions and expectations about what you guys become as an entity.**

S 3: Yeah and can you improve on that entity, and just to...

**R: Yeah, and you're going to copy something from the other group and you think, wow that's working isn't it? Well we're not going to rap but there's something they're doing that we and others might tap into.**

S 2: The biggest thing about our group was that everyone was quite black and white – well not everyone, rather there were a few main players that were very black and white and the rest of us were just like, yeah whatever, we'll just go with the flow. So a few of our presentations were very boring.

S 1: Stale, they were stale [laughs].

S 2: Yeah [laughs] and finally we put the humour one in, the Collingwood thing and that was actually quite fun to do is to mock Collingwood [laughs] and yeah.

**R: Did you get an extra five marks for that?**

[Laughter]

**R: Or did you lose five marks?**

[Laughter]

S 2: Look we lost 10 marks I think because we were putting Collingwood up there.

S 4: [Laughs] but yeah, that was probably the funnest thing that we did out of the whole thing, but most of our members were quite black and white and they didn't want to do something fun. If I had it my way we probably would've done a funner website rather than Bollywood which is something way out of my zone.

**R: Thinking about your identity, assumptions about the presentations you were doing for an audience not just about for the lecture, will that inform what you would do next time...**

S 5: Yeah.

**R: Do you think it makes a difference - and obviously I'm attempting to try to convince you guys before you even step in the room for the first time that yes there's some content, here it is, a little pre-test, I want you to know these concepts, because if you know them, then we can jump straight in...**

S 3: Yeah.

**R: ...and we can go to work rather than having to muck around with that - but setting the unit up in such a way, that I'm also telling you that it's about personal development? So you cannot really play with these ideas unless you can play with them...**

S 4: Yeah.

[Laughter]

**R: Is it important and do you think there is an opportunity to actually do something other and be assessed on something other than just knowledge.**

S 1: Yeah. I was pretty bad I didn't look at any of the content before I started the first weekend so it was [laughs], yeah. After doing the test I appreciated I should've worked through it all, yeah [laughs] but...



S 2: Yeah, I didn't study until in the morning before the test...

S 5: Yeah.

S 7: ...and I was a bit disappointed in myself because I was like, leave it and get to it later. I ended up never getting onto it.

S 6: I watched the short video and that was it. I watched about three-quarters of an hour before we started [laughs]. That's pretty poor.

**R: So did you get a chance to play and to learn by experience and to really unpack things and try things out and then think about how does this relate to the real world? Does that happen in the other units that you're doing?**

S 2: In other units? Geology all the time I reckon.

S 3: Oh yeah it does because there's rocks. You walk down the road and there's rock, camping under the wide blue yonder [laughs] and I found out it came from here.

S 4 Yeah, how can I unpack the sequence.

S 5: Yeah, not as a social aspect.

[Over speaking]

S 6: ...a detective type of...

S 1: Yeah, logical steps.

**R: How about with the Ag. science?**

S 4: No, I think there's very little applied logic and problem solving in ag science, like it's...

R: What about communication skills for like you might become a consultant, you might be walking onto someone else's farm and...

S 1: No we don't get it...

S 2: Well yeah, we don't really...

S 3: ...it's really pretty poor.

S 4: ...yeah, we don't get help with that kind of stuff even though that's essentially what I'm going to be doing.

S 5: They don't give you any of that base knowledge as far as that sort of thing goes, it's...

**R: Do you think that's because there's too much of an - and I'm not saying too much as in it shouldn't be, I'm just saying there is a greater emphasis within that curriculum on the knowledge that you're perceived to have to have versus people suspecting that you can only have the knowledge if you can use it...**

S 3: Yeah.

**R: ...I think the assumption is if you know it you can use it.**

S 2: Yeah.

**R: When you go out on placements is there an assumption then that you can communicate and deal with problems and...**

S 2: I think so.

**R: ...you can be sensitive to other people's issues and know how to manage those types of challenges?**

S 3: I think if you don't act that way, if you're not that way inclined, you won't be welcome back for the 2nd day basically. Because partially you're a hazard to have in some placements, having an extra person there doing things can be a hazard. As well as that, if you're doing it with say a bank or an agronomist that's consulting on a financial basis, you could be dealing with some sensitive information, like it could be a farmer that's going under or something like that, so yeah.

**R: I noted a lot of you talked about one of the best things about the unit that helped your graduate attribute development was, having fun and yeah, and the humour.**

S 1: Well we're not going to spend our weekend...

S 7: Yeah [laughs].

**R: But it's been noted a lot by people that...**

S 4: Yeah.

**R : ...so what's the link between humour, fun and developing those sort of skills?**

S 3: It was good to, it helped me get up on the Sunday morning and be like yeah, I'm actually going to go out and do something that's going to be fun, rather than sit there and just be bored all day. It was good to see all the other groups and like the

guy singing, that was amazing. Yeah, watching them come out of their comfort zones.

**R: So that had an impact on you? How did you feel when you were watching people come out of their comfort zone and enjoying the experience? How did that make you feel?**

S 2: Yeah. Watching that guy sing and I probably just felt I will never do that, but he felt comfortable enough to do it in front of everyone. So yeah I guess...

S 6: For me maybe it was watching people not push themselves, it was more noticeable than people actually pushing themselves. Because then you're like, well I know you can do something, but you're standing there looking at the keyboard and mumbling.

S 4: Yeah, I do get a bit frustrated with people mumbling.

**R: So was that that humorous element?**

S 2: Well you know that they can do better than what they're doing but they're not actively pushing themselves to convey in a humorous way or...

S 1: I think that comes down a little bit also to the group dynamics.

S 7: Yeah, I think so.

S 5: You just get lucky and you get in a little group. You sit down and you have your first chat and you realise that actually you're all pretty cool and you're up for the challenge obviously to think and roll forward. Some people get stuck in a group and that's one of the downsides, you see that.

But the humour is a really important part for me. - but it is one of the only times where you naturally lower your assumptions, suspend judgment. So if you're having fun, you're much more likely to roll with other people's suggestions and ideas, than if you're not having fun - it's almost like, no, we can stick to this. So you've just got a chance to move something forward and jump onto a different plain and do something in a different way - if you're having fun - and of course...

S 1: Be spontaneous.

**R: Yeah, absolutely. Just a couple more things I wanted to touch on. Being realistic and you reflect on that whole experience with the unit, do you feel that there was anything that got in the way of you developing your communication skills, problem solving, social responsibility? It could be anything about yourself, could be about the educator, could be about a whole range of other factors. For**

**example timeframe. This unit, years ago, used to be taught across a semester, every fortnight we'd come in. So the group work would happen between fortnights which made it hard because then you'd have to coordinate every fortnight.**

S 1: Yeah.

S 5: I didn't think the timeframe or anything like that got in the way. I found it quite easy, you got an hour to work on it or an hour-and-a-half, whatever it was, to work on a presentation. I thought that worked best because it was just easy, it was then done and straight...

**R: A bit more focused?**

Female: ...yeah, there was time going, oh we should do this, no we could do this and then changing ideas as we went through.

S 7: You could quickly improve on the next presentation...

S 3: Yeah.

S 4: ...on what you did in the last one. You could quickly reinvent it rather than like, two weeks so you forget everything.

S 1: Yeah.

**R: That's how it works in the real world too. In reality we don't get often long periods of time to ponder how we're going to do things differently. We get on average nine minutes on any task as managers. So you're consistently having to make decisions and apply different approaches to how we go about doing things. So time wasn't any issue. For anyone else, was there anything you felt like got in the way, that hindered? Like if you were the educator... what would you do differently?**

S 4: Only the Lonnie thing.

S 2: It stems from Lonnie, that was the only thing I found was being stuck with a group with people from Launceston. It would've been so much easier if they were in Hobart. So maybe next time make them be together, force them, just for the fact...

**R: Because of the communication stuff you can start off with?**

S 4: It's easier for them as well, easier for us.

**R:** If you were the educator and someone said, we want you to teach geology, you've got enough of it now and I want you guys to go off and do what you guys are doing, how - and you wanted students to develop communications skills and problem solving skills and social responsibility, doesn't have to be all three, [unclear] ones have to develop them all at one time - how do you reckon you - having been a student and currently being a student - how do you think you'd change things in any type of unit to actually enable that process to occur?

S 3: I'd probably make it more interactive.

S 6: Yeah.

S 3: At the moment they're just lecturing us and that's basically all we do.

S 3: More like, yeah getting the students to put out their ideas and actually asking students questions and things like that, rather than just talking at you.

[Students nodding]

S 5: Yes, first year, I reckon you'd be on the land look at rocks, learn how to identify it, 2nd year, every week you're just in the field looking at rocks, mapping out the area.

**R:** How much are you in the field now?

S 5: Never.

S 6: Like a few times this semester. Yeah, I think two times, one...

S 6: Yeah, like this is what we're going to do. When we finish our degree we're going to be stuck in the field doing this, so why not start it now, like an apprenticeship even. That's how it should be I reckon.

S 7: I started doing mining work before I came to uni. I did two years mining exploration and so I've got that background knowledge and I can easily see, this is where I'm going. But then a lot of people in the class can't really imagine past the 3rd year of uni.

S 7: They get stuck on the really small, insignificant things when you're meant to be looking at a much larger scale.

**R:** That's interesting.

S 2: I think geoscience should be more field-based than what it is.

**R: Thinking of all the different friends you have at uni and the various study areas they and you are engaged in, can you imagine any subject areas where it wouldn't need to be field or oriented in that sense?**

S 1: IT, yes.

S 2: Yeah. Because you sit on the computer and figure it out.

S 3: Probably chemistry as well.

S 6: ...and when you try and find a job, there's always an idea of experience, no I don't have experience so you can't have the job, but where am I going to get this experience from? Well you should get this experience from being at uni.

S 2: I know so many people that are really smart but as soon as you put them out in the field, they're dumb [laughs]. They have no idea what they're doing.

**R: That's probably part of the reason why so many students - I remember my step-son started off with engineering and exactly what you're saying, studying, down at this level and then once it got broader and started thinking about how all of this was going to be applied, he realised, I don't really want to do this. But it was because it was all 'arse'-about, it wasn't giving people that experience and getting them to touch, feel and engage in things at the outset and then you can drill down to the knowledge.**

**R: Just interesting, around ways that things actually are assessed.**

S 3: I get frustrated because I don't cope well with exams, I get quite severe exam anxiety. As soon as you put me in the field I can tell you all about it, but as soon as I'm in an exam situation I freak out and all the information comes out in goober, garbled, just nothing really, you can't make any sense of it.

R: Are you drawn towards subjects therefore - because I noticed you mentioned before about ... the next unit, what the assessment's going to look like, does that influence you?

S 7: I try to have less exams. I only have three exams this semester which tends to take off the stress a bit because it's less content that I need to know and yeah.

**R: Do any of you have units that have got a fairly high online component?**

[In chorus – No]

S 7: Nothing. We've got online quizzes and stuff like that but nothing else.

**R: Coming back to those sorts of issues, can you think of times when you personally are just not in the right frame of mind or in the right space to actually be open to the opportunity to develop communication skills, and think, is it about you sometimes? Is it about the dynamic that you've, if you'd found yourself in one of those groups that didn't really work - put up the shutters here, I'm really - can you think about the - so there's what I could do and there's the nature of the learning environment - but what are the factors at your level that get in the way of you being able to develop graduate attributes do you think?**

S 2: Whether or not the other people are on the same page as you I suppose, like if we're all in a group together trying to come up with an idea but there's only two of us who want to be here. They're all texting and want to leave and whatever. It's obvious we don't want to be here, well what are we doing here, just leave, don't want to be a part of it. So if everyone's on the same page... I guess.

**R: So you mean like their level of motivation, whether they're present and engaged?**

S 4: Yeah if everyone's there, engaged and motivated, it's infectious I guess.

[Students nodding]

S 5: I think time in semester impacts up a bit, not necessarily the presentations and stuff but with our website and that sort of thing, sometimes things would fall just at a bad time. You'd be thinking about something else.

**R: There is always the option of letting everyone in the class *pitch* themselves in one way or another into the type of group they want to be in - want to be in a loud group, want to be in a quiet group. We did this a few years ago and it actually worked out really cool. So the sanguine people they don't get any work done. You walk around five minutes before the presentation, oh yeah we're going to get to that in a minute. The process driven people, you get to them and they're like, we're really unsure if this is the right way to do it [laughs]. The cleric people who all want to be the boss right, they just couldn't cooperate with each other... and the phlegmatic people, well they didn't necessarily worry too much about the outcome, they just enjoyed each other's company.**

[Laughter]

S 1: We were quite lucky because we just went with our row, who was on our row. We actually got quite a mix of people really, made it a bit easier.

R: That's also the reality of what might happen in the workplace too. So then you want to be able to reflect on, what was that like for me and how did I manage that

being with a whole lot of people that are like me? Because that can happen as much as having a diverse group of people as well.

R: Anything else guys? Anything else you can think of?

[Aside discussion]

R: Once again thank you for your time... for volunteering to share your experiences and insights. It has been very valuable for my research. Once again a reminder that your contributions are anonymous and confidential.

**END OF TRANSCRIPT**



**Appendix 9**

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**Perceived factors enabling and/or suppressing graduate  
attribute development by key themes**

### Appendix 9: Perceived factors enabling and/or suppressing graduate attribute (GA) development by key themes

Student-based factor	Educator-based factor	Learning Environment-based factor	Student-student based factor
Responsible for researching and solving own problems and testing assumptions in the real world by talking about ideas (E) (7%)	Freedom to innovate and make mistakes Some task ambiguity allowed for thinking outside the square and a chance to explore some unique ideas (E) (15%)	Learning activities were student-considered and reflected the diversity of the group (E) although at times felt 'random' (S) (5%)	Adopted creative and novel approaches to tasks which challenged previously held assumptions (1%)
Intensive delivery meant material was condensed and impacted on approach to learning (S) Encouraged to develop and learn in own way (E) (1%)	The use of pedagogical space encouraged students to work in their own way through a blended approach to learning (1%)	Encouraged to share ideas, experiences and beliefs to gain meaning (1%)	Freedom and reflection in groups (and individuals) to alter behaviours (7%)
Communicate clearly and sensitively with others and using humour in pursuing solutions to new or novel problems (2%)	Opportunities to explain own interpretation of theory presented by the educator (E) (1%)	Assessment criteria and feedback, using a taxonomy, identifies strengths and developmental needs (2%)	Opportunities to collaborate in various ways (E) Scaffolding and constructing ideas developed through collaboration (12%)
More adaptable through frequent opportunities to explore outside one's comfort zone as the learning environment was psychologically safe (E) (8%)		Assessment is reflective and authentic (E) (9%)	Became more committed and accountable to the group and individuals (E), however level of commitment can affect outcomes of collaboration (S) (3%)
Becoming more passionate and inquisitive as new learning is connected/integrated with previous learning and experience (E) (5%)		Assessment lacked structure and clarity (S) (1%)	Extensive group work may have fostered homogeneity and didn't encourage quiet students to engage (S) (2%)
Opportunities to discover the individuality in others, what they value and why they act as they do helped forge new friendships (E) (6%)			
More independent learner and capable of dealing with ambiguous situations (E) (3%)			
Personal self-evaluation and reflection lead to a heightened sense of place and personal values (E) (7%)			

**Appendix 10**

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**Criteria for Thematic Analysis**

## Appendix 10: Criteria for thematic analysis

Braun and Clarke (2006: 96) 15-point checklist of criteria for good thematic analysis

Process	Number	Criteria
Transcription	1	The data have been transcribed at an appropriate level of detail, and the transcripts have been checked against the recordings for 'accuracy'.
Coding	2	Each data item has been given equal attention in the coding process
	3	Themes have not been generated from a few vivid examples (an anecdotal approach), but instead the coding process has been thorough, inclusive and comprehensive
	4	
	5	All relevant extracts for each theme have been collated
	6	Themes have been checked against each other and back to the original data set Themes are internally coherent, consistent and distinctive.
Analysis	7	Data has been analysed – interpreted, made sense of; rather than just paraphrased or described
	8	Analysis and data match each other – the extracts illustrate the analytic claims
	9	Analysis tells a convincing and well-organised story about the data and topic
	10	A good balance between analytic narrative and illustrative extracts is provided.
Overall	11	Enough time has been allocated to complete all phases of the analysis adequately, without rushing a phase or giving it a once-over-lightly.
Written Report	12	The assumptions about, and specific approach to, thematic analysis are clearly explicated
	13	There is a good fit between what you claim you do, and what you show you have done, i.e. described method and reported analysis are consistent
	14	The language and concepts used in the report are consistent with the epistemological position of the analysis
	15	The researcher is positioned as active in the research process; themes do not just 'emerge'.

**Appendix 11**

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**One-way between groups analysis of variance (ANOVA):  
Impact of age on approaches to learning**

## Appendix 11: One-way between groups analysis of variance (ANOVA) - Impact of age on approaches to learning

**Question 4 - 'I only study seriously what's given out in class or in the Unit outlines':**  $F(3, 144) = 2.677$ ,  $p = 0.49$ . The actual difference between the mean scores for this question was **quite large**. The effect size, calculated using eta squared was .055. Post-hoc comparisons using the Tukey HD test indicated that the mean score for Group 1 ( $M = 3.21$ ,  $SD = 1.051$ ) was quite different for Group 4 ( $M = 2.00$ ,  $SD = .816$ ) and Group 3 ( $M = 2.45$ ,  $SD = 1.036$ ). Group 2 ( $M = 3.17$ ,  $SD = 1.145$ ) did not differ significantly from Group 1. (Note: 5 respondents missing).

**Question 7 - 'I do not find my study very interesting so I keep my work to be minimum':**  $F(3, 145) = 5.108$ ,  $p = .002$ . The actual difference between the mean score for this question was **very large**. The effect size, calculated using eta squared was 0.105. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 2.14$ ,  $SD = 1.027$ ) was very different for Group 4 ( $M = 1.25$ ,  $SD = .500$ ). Group 3 ( $M = 1.45$ ,  $SD = .688$ ) was similar to Group 4 whereas Group 2 ( $M = 2.14$ ,  $SD = 1.027$ ) was similar to Group 1. (Note: 3 respondents missing).

**Question 8 - 'I learn some things by rote, going over and over them until I know them by heart even if I don't understand them':**  $F(3, 146) = 3.752$ ,  $p = 0.12$ . The actual difference between the mean scores for this question was **quite large**. The effect size, calculated using eta squared was .007. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 3.07$ ,  $SD = 1.385$ ) which was similar to Group 2 ( $M = 2.99$ ,  $SD = 1.151$ ). The mean score for Group 3 ( $M = 1.45$ ,  $SD = .688$ ) and Group 4 ( $M = 1.25$ ,  $SD = .500$ ) were very similar. (Note: 3 respondents missing).

**Question 11 - 'I find I can get by in most assessments by memorising key sections rather than trying to understand them':**  $F(3, 146) = 4.347$ ,  $p = .006$ . The actual difference between the mean scores for this question was **quite large**. The effect size, calculated using eta squared was .008. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 2.79$ ,  $SD = 1.122$ ) was very similar to Group 2 ( $M = 2.79$ ,  $SD = 1.147$ ). The mean score for Group 3 ( $M = 1.91$ ,  $SD = .944$ ) was similar to Group 4 ( $M = 1.25$ ,  $SD = .500$ ). (Note: 3 respondents missing).

**Question 13 - 'I work hard at my studies because I find the material interesting':**  $F(3, 146) = 3.084$ ,  $p = .029$ . The actual difference between the mean scores for this question was **quite small**. The effect size, calculated using eta squared was .063. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 2.36$ ,  $SD = 1.008$ ) which was lower than for Group 2 ( $M = 3.03$ ,  $SD = 1.016$ ); Group 3 ( $M = 3.55$ ,  $SD = .934$ ) and Group 4 ( $M = 3.25$ ,  $SD = .957$ ). (Note: 3 respondents missing).

**Question 15 - 'I find it is not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with the topics':**  $F(3,$

145) = 3.809,  $p = 0.12$ . The actual difference between the mean scores for this question was **large**. The effect size, calculated using eta squared was .07. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 2.00$ ,  $SD = .784$ ) was lower than Group 2 ( $M = 2.26$ ,  $SD = 1.000$ ), whereas Group 3 ( $M = 1.45$ ,  $SD = .522$ ) and Group 4 ( $M = 1.25$ ,  $SD = .500$ ) were similar. (Note: 4 respondents missing)

**Question 16 – ‘I believe that lecturers shouldn’t expect students to spend significant amounts of time studying material everyone knows won’t be examined’:**  $F(3, 146) = 3.028$ ,  $p = .031$ . The actual difference between the mean scores for this question was **large**. The effect size, calculated using eta squared was .062. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 3.00$ ,  $SD = 1.177$ ). Group 2 was a similar result ( $M = 2.77$ ,  $SD = 1.131$ ) whilst Group 3 ( $M = 2.09$ ,  $SD = 1.221$ ) and Group 4 ( $M = 1.50$ ,  $SD = .577$ ) were considerably lower. (Note: 3 respondents missing).

**Question 18 – ‘I make a point of looking at most of the suggested readings that are to do with the lectures’:**  $F(3, 144) = 6.555$ ,  $p = 0.00$ . The actual difference between the mean scores for this question was **large**. The effect size, calculated using eta squared was .136. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 2.43$ ,  $SD = .852$ ) and was similar to Group 2 ( $M = 2.69$ ,  $SD = 1.015$ ). The mean score for Group 3 ( $M = 3.64$ ,  $SD = 1.027$ ) was significantly less than the mean score for Group 4 ( $M = 4.25$ ,  $SD = .500$ ). (Note: 5 respondents missing).

**Question 19 – ‘I see no point learning material which is not likely to be assessed’:**  $F(3, 144) = 3.839$ ,  $p = 0.11$ . The actual difference between the mean scores for this question was **large**. The effect size, calculated using eta squared was .079. Post-hoc comparison using the Tukey HD test indicated that the mean score for Group 1 ( $M = 3.43$ ,  $SD = 9.38$ ) was significantly higher than Group 2 ( $M = 2.60$ ,  $SD = 1.137$ ). Group 3 ( $M = 2.09$ ,  $SD = .831$ ) was similar to Group 4 ( $M = 2.00$ ,  $SD = .816$ ). (Note: 5 respondents missing).

(Note: Questions 13 and 18 relate to Deep Approaches to learning).

**Appendix 12**

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**Example of student informal conversation  
response**



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**Appendix 12: Example of Student Informal Conversation response**

Date: October 2013

Conversation with a student enrolled in a 2<sup>nd</sup> year BMA unit employing an experiential approach confirmed that the Unit Outline (provided on MyLO) included the graduate attributes within the assessment rubric but the attributes were not specifically discussed by the educator. The assessment tasks were discussed in Lecture 1 and reference was made to the specific page of the Unit Outline which also included the graduate attributes. The student was unable to elaborate on how the graduates may be used except for work and life in general. The student was not sure to what extent that the Unit enabled the development of graduate attributes, however identified two enablers that may have contributed to the development of graduate attributes, those being group work and presentations (communication and problem-solving skills). The student was unclear as to what social responsibility meant and therefore could not define how or if it was developed in the unit.

Also noted was a lack of feedback on the development of graduate attributes with the exception of communication skills as they formed part of the group presentation. It was also noted the student perceived no monitoring (feedback) or measuring of progress towards the development of graduate attributes occurred in the Unit. The student acknowledged that they did not track their own progress of graduate attribute development, receive help to track their progress nor did they seek advice on their development.

This student observation is in line with other such remarks and is consistent with responses by students enrolled in units employing traditional delivery methods.

**Appendix 13**

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**One-  
way between groups analysis of variance (ANOVA): Impact of  
age on perceived graduate attribute development pre- and  
post-unit**

### **Appendix 13: One-way between groups analysis of variance (ANOVA) – impact of age on perceived graduate attribute development pre- and post-unit**

**Impact of age** on the perceived level of graduate attribute development **pre-unit**. Statistically significant difference at the  $p < .05$  level in the perceived level of social responsibility element 1 (SR E<sup>1</sup>), that is considering social groups in business practice (SR E<sup>1</sup>):  $F(3, 143) = 2.98, p = .034$ . The effect size was calculated using eta squared, was .06. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ( $M = 3.57, SD = .756$ ) was similar to Group 2 ( $M = 3.64, SD = .864$ ) with some difference to Group 3 ( $M = 4.00, SD = .447$ ) and a greater difference to Group 4 ( $M = 4.75, SD = .500$ ).

A one-way between-groups analysis of variance (ANOVA) was conducted to explore the **impact of age** on perceived development of graduate attributes **post-unit**. Respondents were divided into 4 groups according to their age (Group 1: <20 years; Group 2: 20 - 29 years; Group 3: 30 - 39 years; Group 4: 40+ years). There was a statistically significant difference at the  $p < .05$  level in perceived ability to demonstrate social responsibility element 2 (E<sup>2</sup>) that is ability to apply ethical values via confidential, honest and respectful behaviour for the four age groups:  $F(3, 137) = 2.672, p = .05$ . The actual difference in mean scores between the groups was quite large. The effect size, calculated using eta squared, was .05. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for this social responsibility element was Group 1 ( $M = 3.85, SD = .555$ ) which was significantly different from Group 2 ( $M = 4.00, SD = .838$ ), Group 3 ( $M = 4.33, SD = .707$ ) and Group 4 ( $M = 5.00, SD = 0.000$ ).

**Appendix 14**

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**Principal Component Matrix: Pre-unit perceived ability  
to demonstrate graduate attributes**

### Appendix 14: Principal Component Matrix - Pre-unit perceived ability to demonstrate graduate attributes

	1		2		3
resp9	.866	comm3	.830	resp7	.929
resp8	.782	comm2	.815	resp8	.384
solv6	.665	comm1	.745	comm2	.189
solv4	.588	solv4	.441	resp9	.121
solv5	.569	solv5	.404	comm1	.029
comm1	.332	solv6	.351	comm3	-.021
comm3	.190	resp7	.091	solv6	-.057
comm2	.082	resp9	.087	solv5	-.123
resp7	.061	resp8	.044	solv4	-.159

Coding as reflected in the questionnaire: comm 1 = Communication E1; comm 2 = Communication E2; comm 3 = Communication E3; solv4 = Problem-solving E1; solv 5 = Problem-solving E2; solv6 = Problem-solving E 3; resp7 = social responsibility E1; resp8 = social responsibility E2; resp9 = social responsibility E3.

**Appendix 15**

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**Principal Component Matrix: Post-unit perceived ability  
to demonstrate graduate attributes**

### Appendix 15: Principal Component Matrix: Post-Unit perceived ability to demonstrate graduate attributes

	1		2
resp8po	0.86	comm2po	0.851
resp9po	0.837	comm3po	0.839
resp7po	0.806	comm1po	0.742
solv6po	0.635	solv4po	0.609
solv4po	0.451	solv5po	0.447
solv5po	0.419	solv6po	0.416
comm1po	0.385	resp9po	0.204
comm3po	0.148	resp8po	0.168
comm2po	0.067	resp7po	0.151

Coding as reflected in the questionnaire: comm 1 = Communication E1; comm 2 = Communication E2; comm 3 = Communication E3; solv4 = Problem-solving E1; solv 5 = Problem-solving E2; solv6 = Problem-solving E 3; resp7 = social responsibility E1; resp8 = social responsibility E2; resp9 = social responsibility E3.

**Appendix 16**

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**Factor analysis pre- and post-unit:  
Students' perceived ability to demonstrate graduate  
attributes**



### Appendix 16a: Factor Analysis – Pre-Unit: Students’ perceived ability to demonstrate graduate attributes

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.864	42.929	42.929	3.864	42.929	42.929	2.630	29.223	29.223
2	1.253	13.921	56.850	1.253	13.921	56.850	2.405	26.727	55.950
3	1.024	11.383	68.233	1.024	11.383	68.233	1.105	12.283	68.233
4	.734	8.155	76.389						
5	.546	6.064	82.452						
6	.530	5.889	88.342						
7	.449	4.988	93.330						
8	.337	3.746	97.076						
9	.263	2.924	100.000						

Extraction Method: Principal Component Analysis.

### Appendix 16b: Factor Analysis – Post-Unit: Students’ perceived ability to demonstrate graduate attributes

Total Variance Explained									
Component	Initial Eigenvalues			Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.564	50.710	50.710	4.564	50.710	50.710	3.046	33.847	33.847
2	1.296	14.399	65.110	1.296	14.399	65.110	2.814	31.262	65.110
3	.837	9.304	74.413						
4	.529	5.883	80.296						
5	.493	5.482	85.778						
6	.394	4.376	90.154						
7	.342	3.798	93.952						
8	.310	3.440	97.391						
9	.235	2.609	100.000						

Extraction Method: Principal Component Analysis.

**Appendix 17**

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**Factors associated with Deep approaches to learning:**

**Principal Component Analysis**

## Appendix 17: Factor Analysis – Factors associated with Deep approaches to learning: Principal Component Analysis

Rotated Component					Deep Learning							
	Component				satisfaction		inquiry		understanding		motivation	
	1	2	3	4	1		2		3		4	
q5	.054	.130	.049	.905	q9	.799	q14	.802	q17	.804	q5	.905
q1	.612	.139	.233	.260	q2	.647	q6	.776	q18	.600	q1	.260
q6	.150	.776	.111	.256	q1	.612	q18	.522	q10	.504	q6	.256
q17	.105	.000	.804	.197	q10	.522	q13	.439	q13	.390	q17	.197
q2	.647	.163	.073	.162	q13	.520	q2	.163	q1	.233	q2	.162
q13	.520	.439	.390	.079	q14	.208	q1	.139	q6	.111	q13	.079
q14	.208	.802	-.035	.005	q6	.150	q5	.130	q2	.073	q14	.005
q10	.522	-.006	.504	-.092	q17	.105	q9	.112	q5	.049	q10	-.092
q9	.799	.112	-.099	-.196	q5	.054	q17	.000	q14	-.035	q9	-.196
q18	-.057	.522	.600	-.263	q18	-.057	q10	-.006	q9	-.099	q18	-.263

Extraction Method: Principal Component Analysis.  
a. Rotation converged in 7 iterations.

Rotated Component				Surface Approach			
	Component			workload		rote learning	
	1	2	3	1		2	3
q16	.329	-.033	.778	q7	.742	q11	.771
q19	.041	.219	.772	q15	.701	q8	.742
q20	.093	.629	.501	q12	.674	q20	.629
q15	.701	.031	.242	q3	.671	q12	.350
q3	.671	.244	.126	q4	.669	q3	.244
q7	.742	.093	.125	q11	.346	q19	.219
q4	.669	.161	.120	q16	.329	q4	.161
q8	.141	.742	.114	q8	.141	q7	.093
q11	.346	.771	.000	q20	.093	q15	.031
q12	.674	.350	-.064	q19	.041	q16	-.033

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 6 iterations.